40 Under 40: These next-gen IT leaders are redefining what it means to be successful. PAGE 26

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JULY 9, 2007
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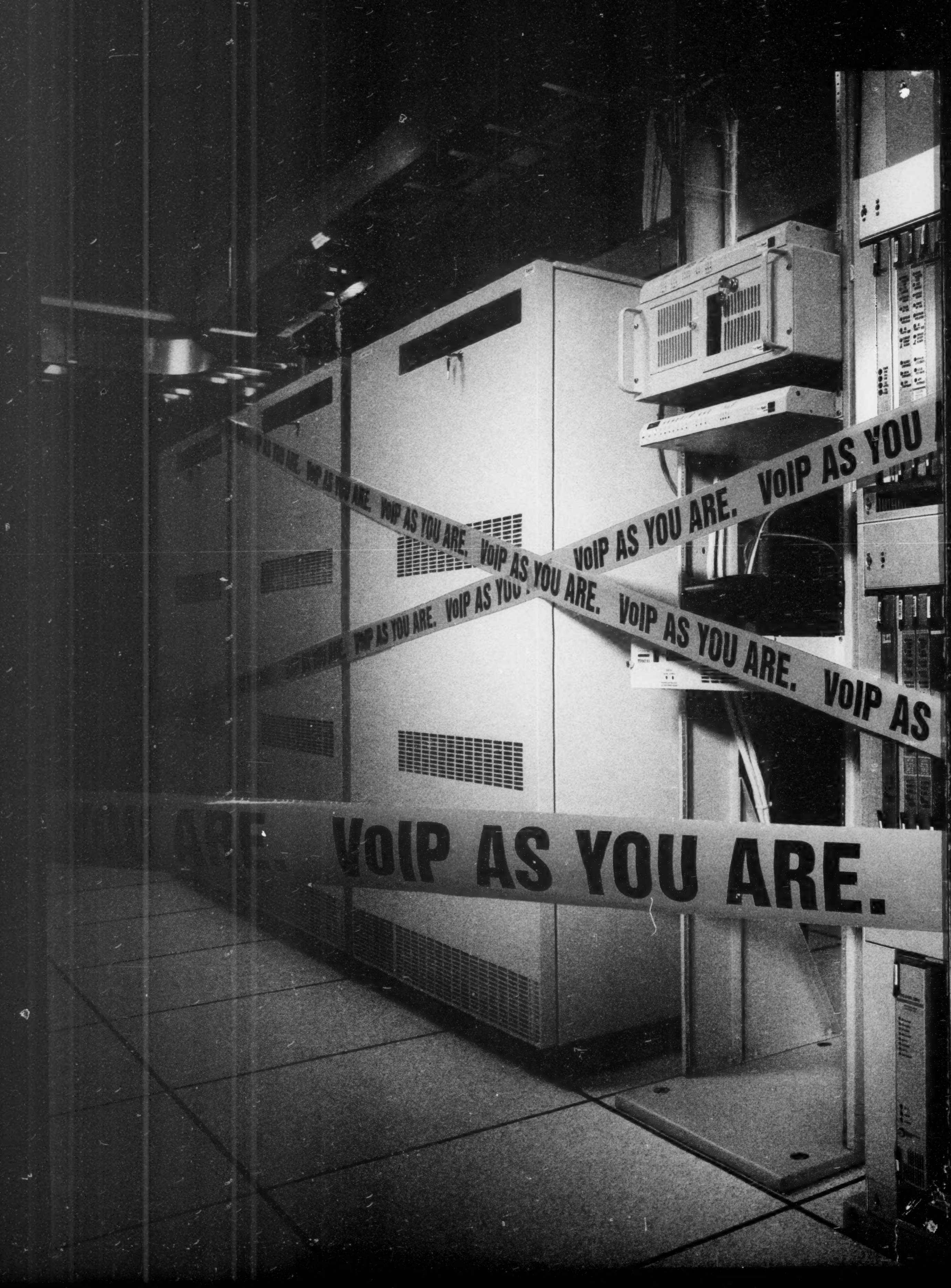

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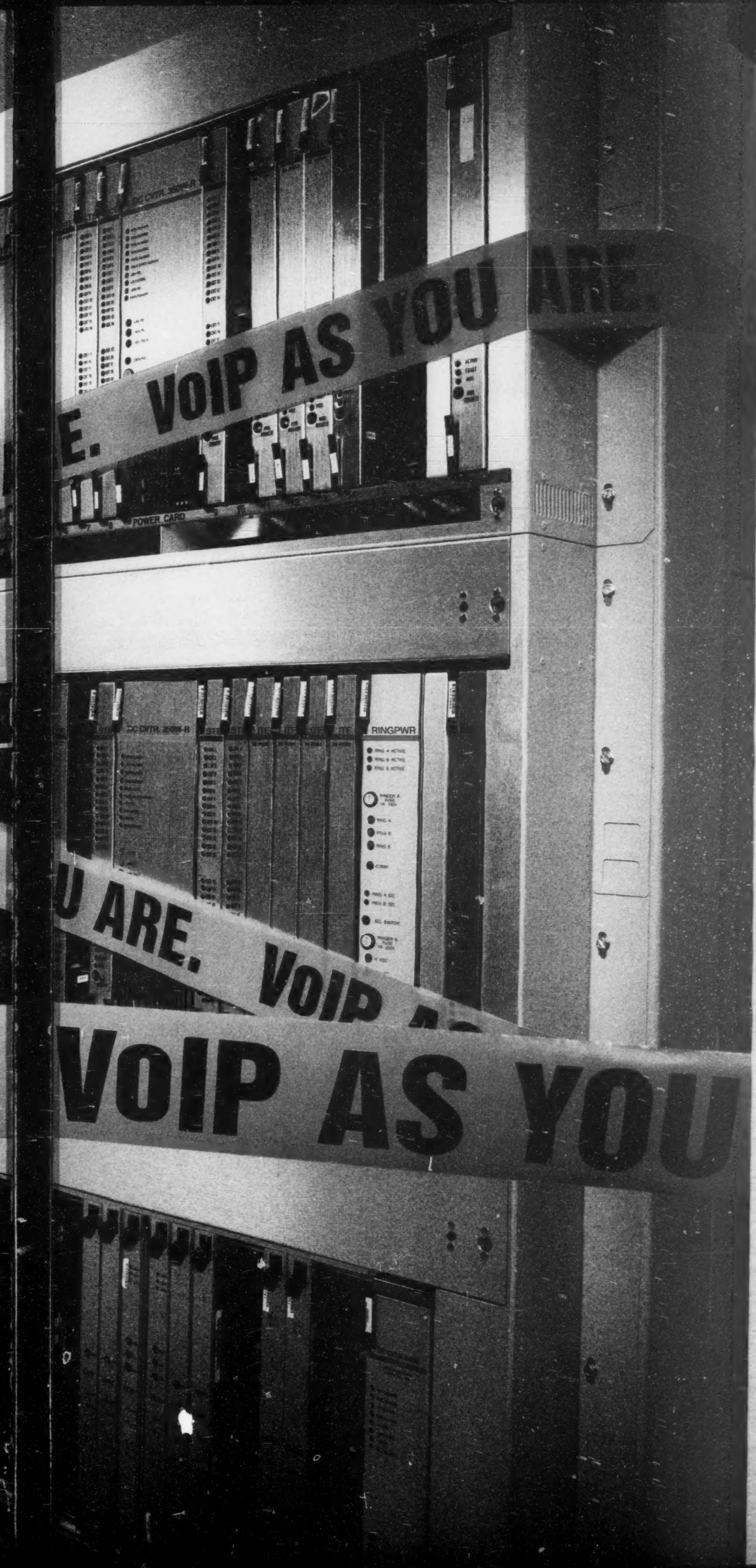

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BREAKING NEWS AT COMPUTERWORLD.COM

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COVER ILLUSTRATION BY RANDY LYHUS

40th Anniversary Special Edition

Random-Access Memories

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A Tale of Two Readers

A pair of *Computerworld*'s earliest subscribers miss the days of worry-free security and elegant engineering but look back happily on long careers in a field with a bright future.

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Computerworld's 40 Under 40

We set out this spring to find 40 young innovators. What we discovered was a diverse group of next-generation IT leaders who are redefining what it means to be successful.

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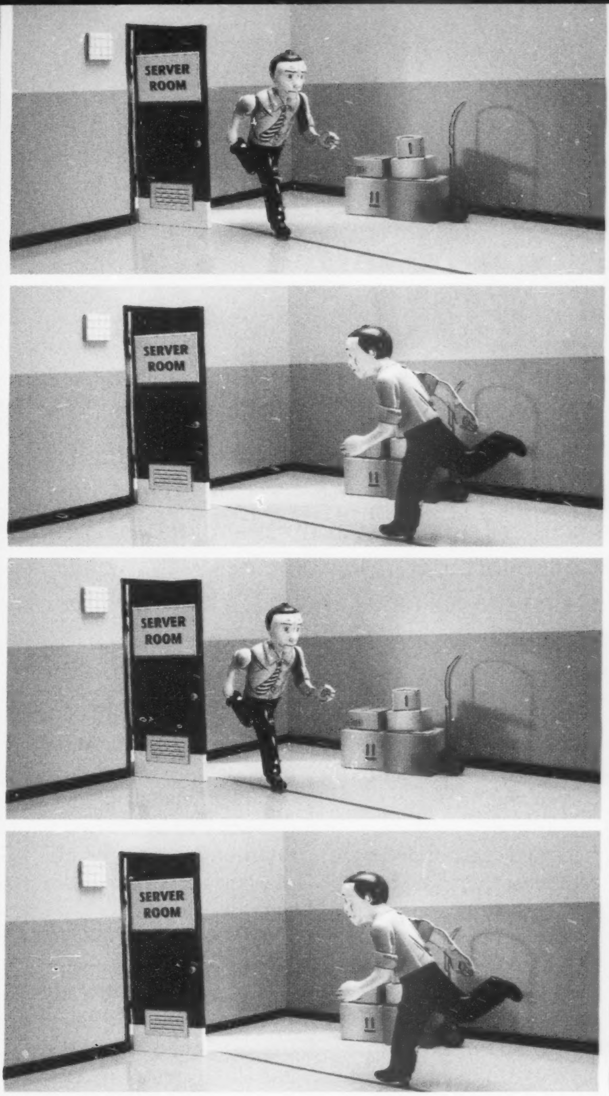
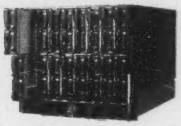


AMD 64 Opteron



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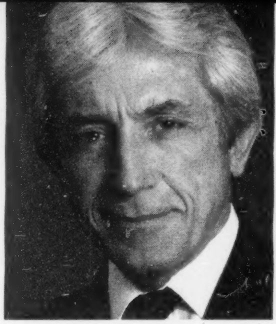
EDITOR'S NOTE

Don Tennant



Thank You

ALMOST EXACTLY a year ago, I received an e-mail from a longtime reader who took the time to do something that neither I, nor most of the rest of us, make nearly enough effort to do. He wrote to say thanks.

He's in the same position the rest of us are in: It's hard for him to find enough hours in the day to get everything done, so the days are long and downtime is at a premium.

"Late in the day, usually around 6:00 p.m., I'll pick up the latest issue of *Computerworld* that has been dropped on my desk and quickly scan through it," he wrote. "After 40 years as an executive in technology, I sparingly pick a few interesting articles that I can relate to and fast-read those."

He went on to share the fact that he does find himself slowing down with certain articles and that something I had written in one of my editorials about some of my own experiences struck a chord with him.

"Your story resonated with me, and in my particular place in life, made me feel better about what I am doing," he wrote. "Thanks."

I got the sense that he wished he had more time to do a lot of things, including reading *Computerworld*, without feeling so rushed. And yet here he was, taking those precious minutes to compose an e-mail to thank someone he had never even met.

That e-mail meant a lot to me, and it occurs to me that there's no better occasion than our special 40th anniversary issue to follow my correspondent's example.

So on behalf of all of us here at *Computerworld*, I'd like to thank you for your readership. The opportunity to learn from, deliver information to and engage senior IT professionals — an influential constituency that has an incalculable impact on global business and the world's economic and technological progress — is one that all of us value and appreciate a great deal.

The opportunity to learn from, deliver information to, and engage senior IT professionals is one that all of us value and appreciate a great deal.

While I'm at it, additional thanks are in order on the occasion of our inaugural issue in a magazine format.

The business decision to switch to the new size — a decision driven by the savings in printing, paper and postage costs — required an extraordinarily fast-paced redesign that took a near superhuman effort on the part of some of the most talented individuals in the publishing business. While it is, unfortunately, impossible for me to acknowledge them all here, I at least want to publicly thank the two people who led the effort: executive editor Mitch Betts, who spearheaded the project; and award-winning design director Stephanie Faucher, who created a look that's fresh and distinctive, yet unmistakably *Computerworld*. Let me know what you think about the work they've done.

By the way, a couple of weeks ago, that same longtime reader took the time to e-mail me again to send his best wishes as we moved to the magazine format.

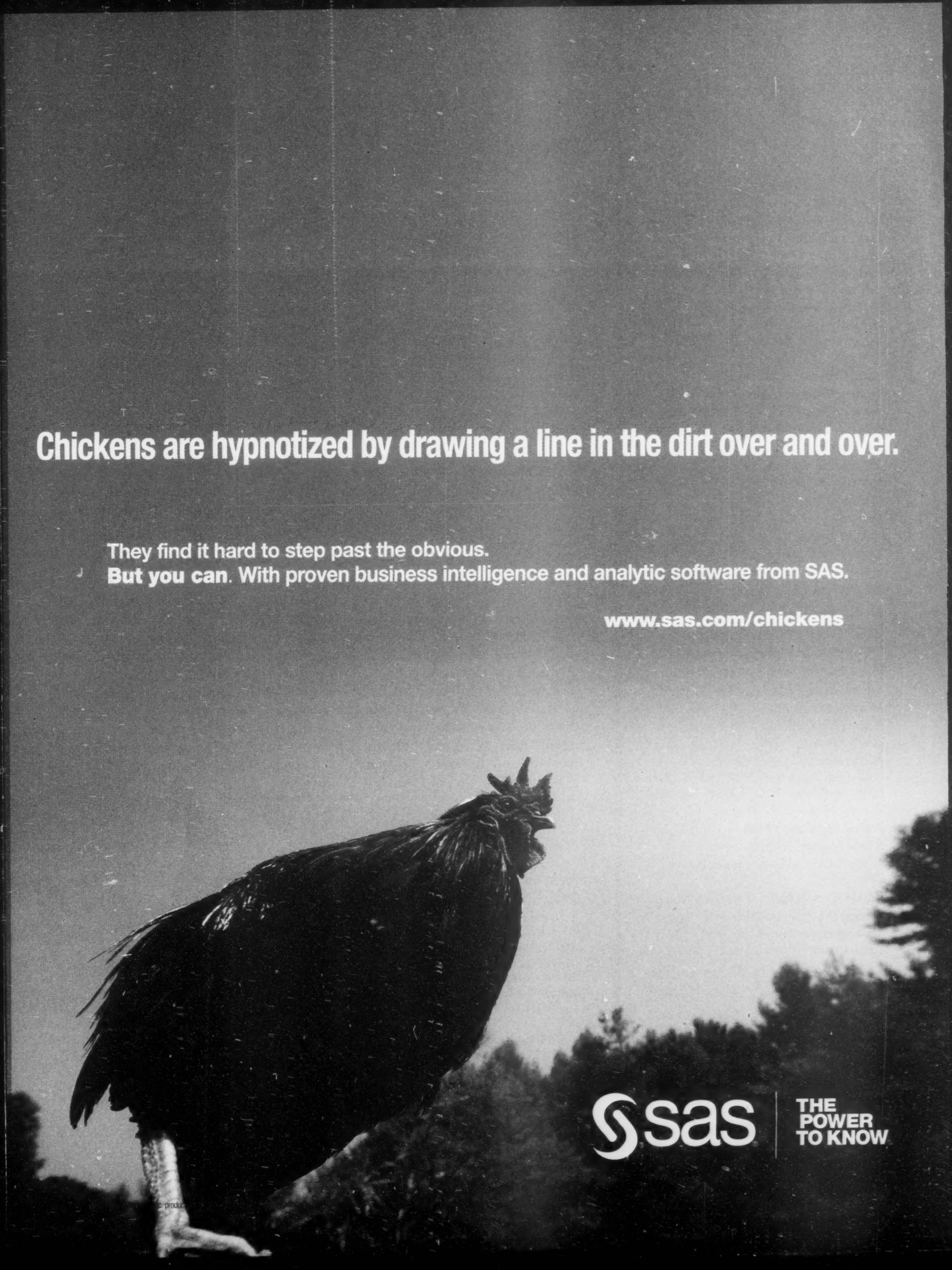
"I've been a reader of *Computerworld* for perhaps 37-38 years, and I've been there from the huge tabloid in the early days to this new format," he wrote. Noting that he enjoys reading the print edition, he expressed the hope that the new format will increase its longevity.

"Like that old IBM backup system (No. 2 pencil)," he wrote optimistically, "the paper format may make a comeback someday."

Maybe, maybe not. What's certain is that we have a constantly expanding opportunity to learn even more from you, deliver even more information to you and engage you even more productively online. Our Web site's enormous popularity will enable us to keep doing what we do, and to keep doing it better, regardless.

So thank you for that, too. ■

Don Tennant *is editor in chief of* Computerworld. *Contact him at don_tennant@computerworld.com.*



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■ LETTERS

Defending Linux

In his May 7 letter ["Tech Flops Are in the Eye of the Beholder"], Robert Gardner suggested that you include Linux in your list of technology flops. He may be a card-carrying Linux hater, and I may be a card-carrying Linux lover, but he should get his facts straight.

Gardner says that in the early days, you had to be "very computer-literate" to install Linux. But in the "early days," MS-DOS and Windows 3.1 were also pretty finicky, along with most other operating systems. Linux is now very easy to install from many different distributions.

As for Windows services, Linux will pretty much do anything Windows will do right now, except run Microsoft software without an emulator or virtual machine. And who cares? There are a lot of native Linux alternatives.

Regarding the size of Linux, consider that all the mainstream Linux distributions include office productivity suites, e-mail clients, browsers, development tools, image editors, media players and lots more right out of the box. With Windows, you get the operating system, Media Player, e-mail client and a browser, and you pay lots more for all the other stuff. If you're concerned about size, you can install base Linux with just a GUI in a very small space.

And the various versions of Linux are not a detriment, but a spark to competition that makes the whole industry better. And it's important to note that the underlying programming model is the same between the distros, so that it is relatively easy to move an app from one distro to another.

■ **David McClanahan,** *senior systems architect, Oak Ridge, Tenn.*

SIM Is Confronting The IT Labor Shortage

I appreciate Frank Hayes' reconsideration of the Society for Information Management's efforts to encourage students to enroll in appropriate information management courses ["Reality IT," Frankly Speaking, May 21]. Our profession appears to be facing a profound labor shortage that apparently can't be entirely solved by offshoring, better management practices, improved development tools or any of the other silver bullets we have at our disposal.

■ **John Howland,** *president, Seattle SIM chapter, Bellevue, Wash., johnrhowland@gmail.com*

COMPUTERWORLD.COM

Newest Windows Server 2008 Beta: Only IIS Is New

Even though IIS is the only major addition in the latest Windows Server beta, the new Server Core role has interesting implications for IT managers who'd like a Web appliance but also want strong systems management features, Jonathan Hassell says.
computerworld.com/servers

Pandemic Planning Isn't A Priority in the U.S.

Concern about a possible bird flu outbreak appears to be waning in the U.S., leaving many IT organizations unprepared for the disruptions that a pandemic could cause.
computerworld.com/storage

The iPhone: Two Reviews, One Conclusion

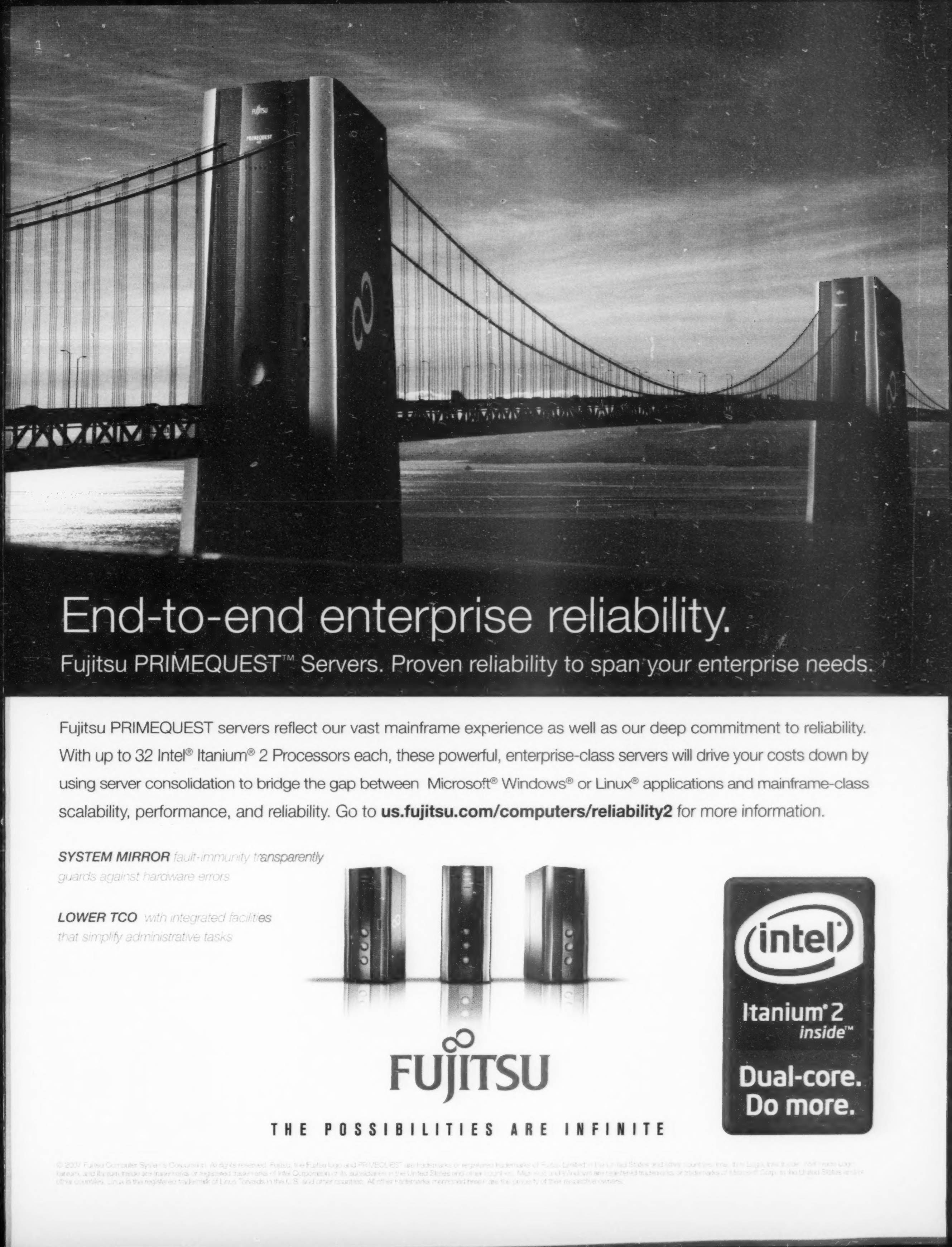
The must-have gadget lives up to the hype.
computerworld.com/mobilewireless

Who Should Get an iPhone?

A Unisys survey reveals that deployment of innovative products like the iPhone can enhance revenue and productivity, but you have to target customer-touching employees.
computerworld.com/mobilewireless

Hands On: Ruby on Rails

Follow along as a *Computerworld* editor learns this hot Web dev framework.
computerworld.com/software



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News Digest

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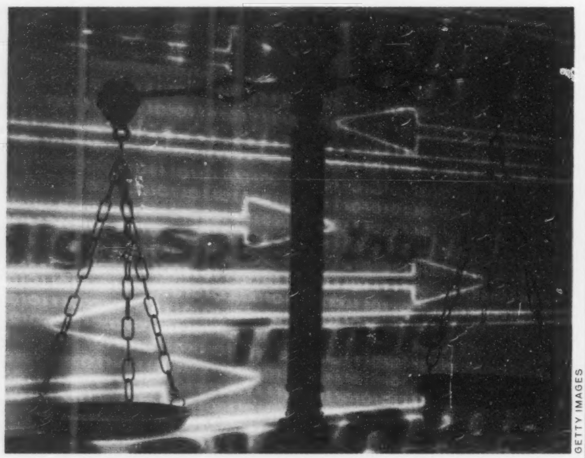
THE WEEK AHEAD

TUESDAY: Microsoft's Worldwide Partner Conference 2007 will begin in Denver, continuing through Thursday.

WEDNESDAY: Oracle plans to formally launch its Oracle Database 11g software at an event in New York.

WEDNESDAY: The Software & Information Industry Association will hold a forum in Washington focused on the 10th anniversary of the publication of "Magaziner Report," which proposed a global e-commerce framework.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ENTERPRISE APPLICATIONS

Users Call for End To SAP-Oracle Suit

SAP AG CUSTOMERS last week said they hope the company's admission of "inappropriate downloads" of content from Oracle Corp. databases will force the two firms into settlement talks.

SAP last Tuesday divulged that its TomorrowNow Inc. services subsidiary downloaded Oracle-owned data, but the company added that SAP personnel did not access it.

SAP was responding to a March 22 lawsuit by Oracle alleging that TomorrowNow staffers hacked into an Oracle support Web site and downloaded vast amounts of content to use in an effort to provide cut-rate support to Oracle customers.

SAP CEO Henning Kagermann said in a statement that the company is now open to a settlement with Oracle, which had charged SAP with "corporate theft on a grand scale."

Rodney Masney, global director of IT infrastructure services at Owens-Illinois Inc. in Perrysburg, Ohio, said he doesn't expect the admission to damage SAP's business. "I believe this will blow over," he said.

Masney, also president of the Americas' SAP User Group, said that Kagermann offered assurances during a telephone conversation last week that an internal investigation is continuing and that "appropriate action" would be taken if a theft of data is discovered.

According to Masney, Kagermann acknowledged that "there were perhaps some procedures not followed, and that significantly increased the amount of data downloaded."

Jason Lachance, manager of business analytics at LSI Logic, a maker of semiconductor storage systems and software in Colorado Springs, noted that "SAP seems to be taking the right approach in admitting fault where they believe it lies."

Lachance said Oracle is entitled to damages if its accusations prove to be true, but he hopes the two companies can reach a settlement. "Software giants battling in the courts and press won't lead to better ERP systems," he said. ■

Marc L. Songini, *with* **Dan Nystedt** *and* **China Martens** *of the IDG News Service*

> **"SAP seems to be taking the right approach in admitting fault where they believe it lies.**
>
> **JASON LACHANCE,** MANAGER, BUSINESS ANALYTICS, LSI LOGIC

SOFTWARE

Mass. Shifts Plan for Open XML Format

MASSACHUSETTS last week revealed plans to support Microsoft Corp.'s Office Open XML format, reversing an earlier controversial proposal intended to force state workers to use only "open" technologies such as the OpenDocument format.

The previous specifications, released about two years ago, would have required state workers to abandon use of Microsoft Office applications.

In an e-mail to *Computerworld*, acting CIO Bethann Pepoli said the format now meets the state's criteria for open technologies and will likely "accelerate the pace of migration to XML document formats."

The decision follows an intense lobbying effort by Microsoft, and Ecma International's acceptance of the format as a standard.

– ERIC LAI

> **"Open XML does meet our established criteria for an open standard."**
>
> **BETHANN PEPOLI,** ACTING CIO, STATE OF MASSACHUSETTS

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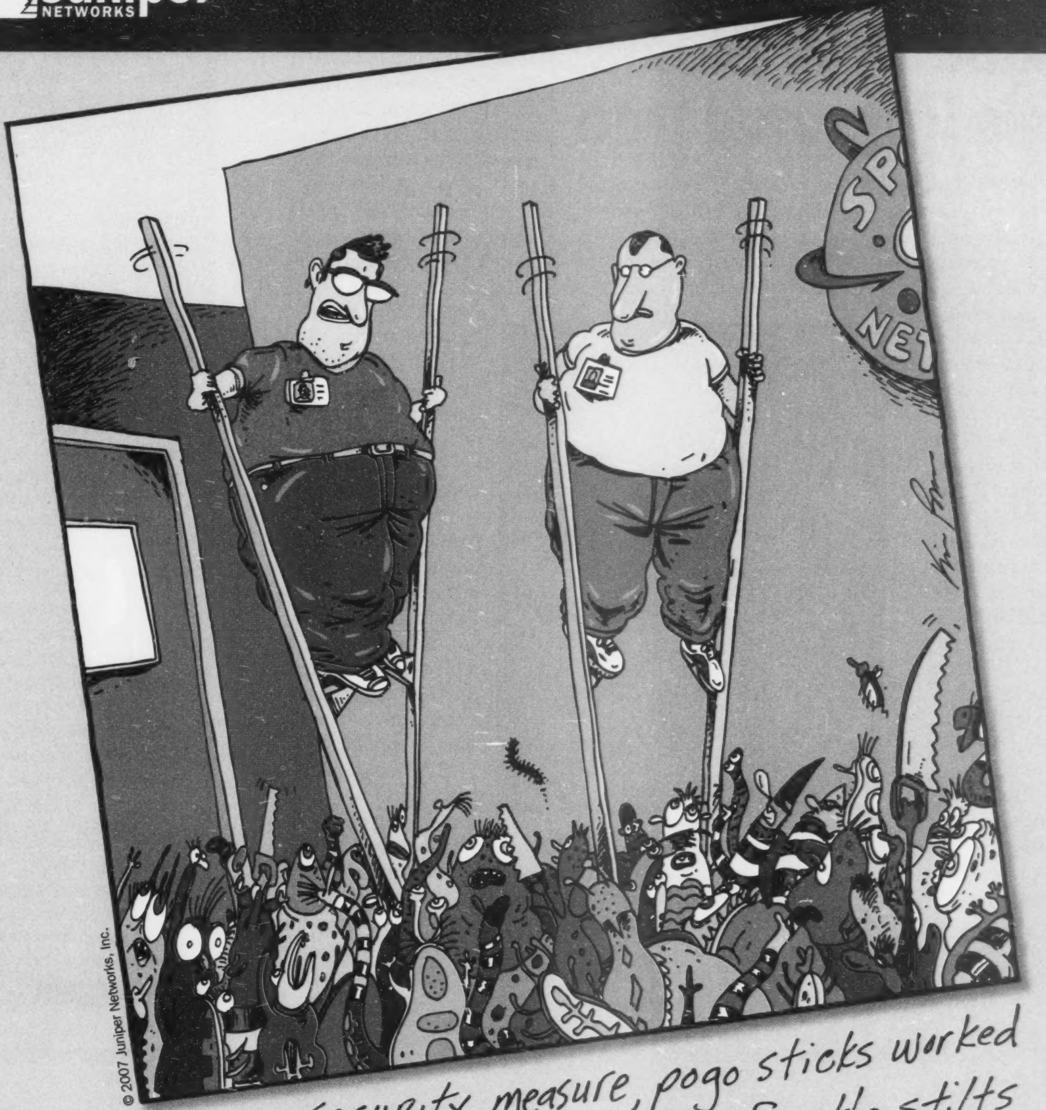

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■ NEWS DIGEST

SECURITY

Rogue DBA Steals, Sells Personal Info

CALL IT A CASE of hiring a fox to guard the henhouse.

Fidelity National Information Services Inc. said last week that a senior database administrator responsible for defining and enforcing data access rights at one of its subsidiaries sold the personal information of about 2.3 million consumers to a data broker. The broker in turn sold a subset of the data to "a limited number" of direct marketing companies, Fidelity National said.

CHET PHILLIPS/GETTY IMAGES

The Jacksonville, Fla.-based company, which offers data processing and outsourcing services to financial institutions and other businesses, added that the stolen data included names, addresses, birth dates, and bank account and credit card information.

For now, at least, it appears that the companies that bought the information have used it mainly to send marketing solicitations to the affected individuals, according to Fidelity National. "We have no reason to believe that the theft resulted in any subsequent fraudulent activity," said Renz Nichols, president of the company's Certegy Check Services Inc. unit.

The database administrator has since been fired, and Fidelity National has filed a civil complaint in a court in St. Petersburg, Fla., against him and the companies that received the stolen data, seeking its return. Fidelity National said it also is "encouraging immediate prosecution" of the DBA by law enforcement authorities.

The data theft came to light after a retailer that uses Certegy's check authorization service reported a correlation between transactions and the receipt of external marketing offers by its customers. Fidelity National called in the U.S. Secret Service, which found that the data had come from a company owned by the Certegy DBA.

"The external attacker gets all the ink," said Andrew Jaquith, an analyst at Yankee Group Research Inc. But, he added, companies also need to pay close attention to workers with high levels of system privileges.

— Jaikumar Vijayan

Short Takes

- **Microsoft Corp.** will release six security updates tomorrow to patch problems in Windows, Office and the .Net Framework. Three of the bulletins will be tagged "critical" – Microsoft's highest rating – while two will be labeled "important" and the sixth "moderate."
- **The Nasdaq Stock Market** has extended to July 16 a deadline for **Dell Inc.** to file three late financial reports with the **U.S. Securities and Exchange Commission.** The SEC began investigating Dell's accounting practices last year.
- Software vendor **Autonomy Corp.** has agreed to acquire **Zantaz Inc.**, a provider of e-discovery and content archiving software, for $375 million in cash. Zantaz, which will continue to be led by CEO Steve King, will become a division of Autonomy.
- **The Business Software Alliance** has temporarily raised the reward for reporting software piracy from $200,000 to $1 million until Oct. 2.

SECURITY

VA Report Spreads Blame for Data Loss

« The VA has yet to find a missing Iomega hard drive.

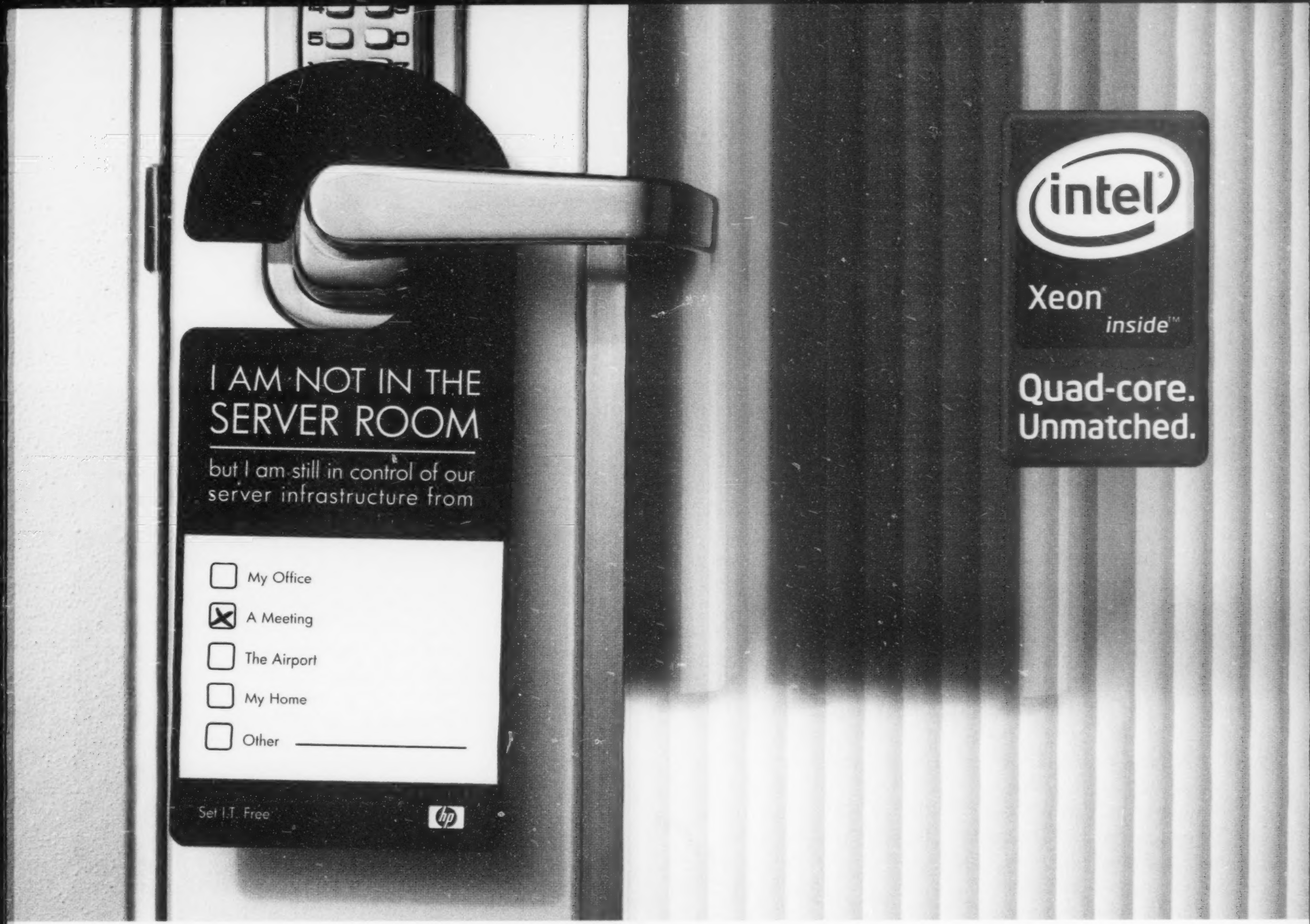
AN IT WORKER at the U.S. Department of Veterans Affairs didn't properly secure data stored on an external hard drive that was lost or stolen in January, and he then initially lied about the scope of the data breach, according to a June 29 report by the VA's inspector general.

But the 79-page report also blamed officials at the VA's medical center in Birmingham, Ala., for letting the worker access "vast amounts" of information that was beyond the scope of the projects he was working on. In addition, the directors of the center were taken to task for not ensuring that proper safeguards were put in place for securing data on external drives.

The Iomega drive, which has yet to be recovered, contained Social Security numbers and other personal data on more than 250,000 veterans and 1.3 million medical providers.

VA Inspector General George Opfer's report recommended that the agency take "appropriate administrative action" against the worker in question, who is classified as an IT specialist, and the top two officials at the Birmingham facility. The report also called on VA CIO Robert Howard and the undersecretary in charge of the agency's medical facilities to create new data security policies and upgrade existing ones.

– JAIKUMAR VIJAYAN



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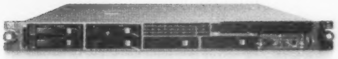

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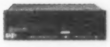

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■ NEWS DIGEST

MOBILE & WIRELESS

Many iPhone Users Are Forced to Hold

IAIN GILLOTT waited in the Texas heat to buy an iPhone on June 29, the day Apple Inc.'s much-ballyhooed mobile device went on sale. But then it took him 47 hours to activate his new phone.

First, Gillott, a wireless technology analyst at IGR Inc. in Austin, learned that his family-rate plan with AT&T Inc. wouldn't accommodate an additional number. Then, an activation message sent by AT&T to Apple's servers timed out before it could be processed.

"When the next big device comes out, I'm not rushing out to buy one," Gillott said. He added that AT&T should have activated phones in its stores, instead of leaving users to do so online through Apple's iTunes service.

Gillott wasn't the only frustrated user. Activation problems lit up message forums shortly after the device went on sale. AT&T customers transferring their cell phone numbers were affected, as were others switching numbers from rival cellular network operators.

But many users who took new numbers reported successful iPhone activations in less than 10 minutes.

"I have talked with countless customers, all of whom have had no problems getting set up," said Jeffrey Kagan, an independent analyst in Atlanta. "Actually, I think we all expected the mad crush of new customers to [create] many more problems than have occurred."

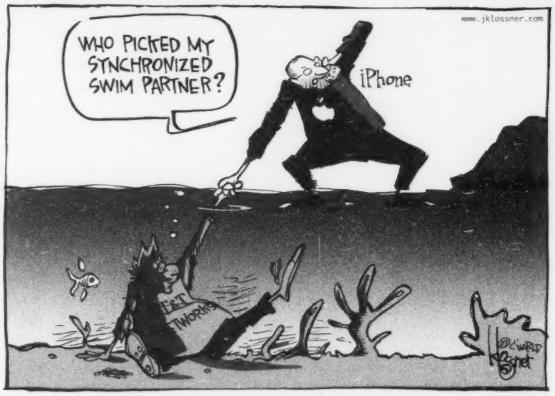
In a posting on the MacRumors.com online forum, a user named "Strum" said it took four days to get his iPhone fully activated. But he wasn't deterred by the long wait. "Would I go through this again for the iPhone? Yes," he wrote.

— Matt Hamblen and Gregg Keizer

≫ Some iPhone users encountered activation delays.

COURTESY OF APPLE INC.

BETWEEN THE LINES *By John Klossner*



BENCHMARKS

MOZILLA CORP. released the last planned alpha version of Firefox 3.0 in anticipation of starting public beta testing of the Web browser upgrade on July 31. A commercial release of the browser is due late this year.

ECMA INTERNATIONAL, a Geneva-based standards body, formed a technical committee that will develop a standard based on Microsoft Corp.'s XML Paper Specification. XPS is a potential rival to Adobe Systems Inc.'s Portable Document Format.

30 YEARS AGO: The first crime bill related to data processing was introduced in the U.S. Senate.

Global Dispatches

U.S. Firm Closes Office in India

BANGALORE, INDIA – Riya Inc., a maker of visual search-engine technology, has announced plans to close its research and engineering operations in Bangalore. The company plans to move the operations to its headquarters in San Mateo, Calif.

Riya had maintained offices in Bangalore to take advantage of the city's low wages and its strong pool of talent.

"Bangalore wages have just been growing like crazy," which "destroyed the ROI" that was the rationale for maintaining the otherwise difficult two-continent operation, said Riya CEO Munjal Shah in his company blog.

Shah predicted that other companies with offshore operations will face similar problems as wages rise.

"I do believe that other start-ups in Bangalore will see the same issue in 12 to 24 months," he wrote.

Tash Shifrin,
Computerworld U.K.

Deadline Looms Over Passenger Pact

BRUSSELS – Critics of an agreement allowing European airline passengers' personal data to be shared with U.S. authorities have just under a month to reshape the accord during upcoming debates in Europe's parliaments.

The European Union and the U.S. reached the agreement in late June after months of negotiation. It will be debated in select national parliaments over the next month.

The latest pact calls for passengers to provide 19 different types of information, including their names, credit card details and travel itineraries. The U.S. currently collects 34 pieces of data from passengers.

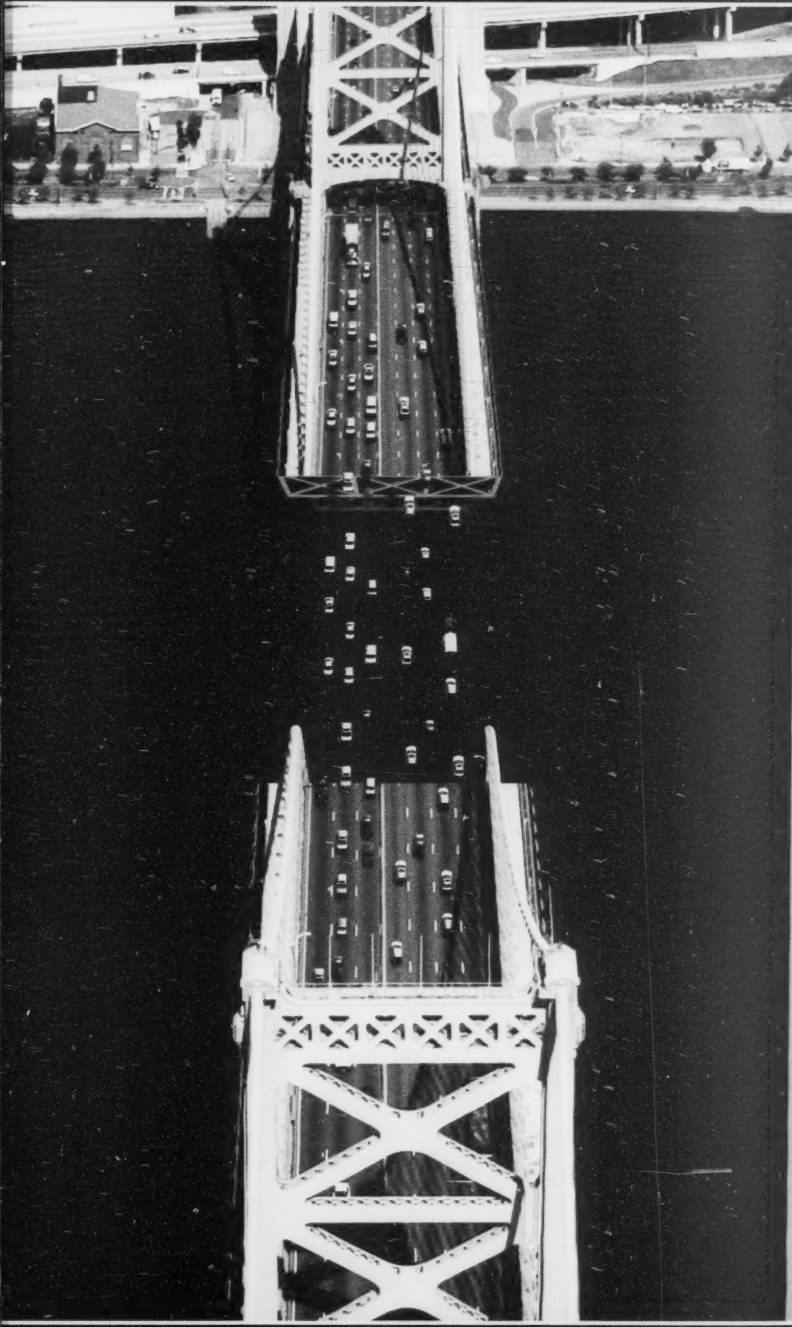
Paul Meller,
IDG News Service

BRIEFLY NOTED

The EU's antitrust regulator has fined Madrid-based telecommunications company Telefónica SA €152 million ($207 million U.S.) for overcharging competitors for wholesale access to broadband services in Spain. The commission opened its investigation of Telefónica in 2003.

Peter Sayer,
IDG News Service

HOW TO EXPECT THE UNEXPECTED



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40TH ANNIVERSARY SPECIAL EDITION

Random-Access Memories

Offbeat recollections of 40 years of the computer world. **By Mitch Betts**

IT WAS 1967. Students were protesting an unpopular war. Beatle John Lennon was on the cover of the first issue of *Rolling Stone*. And Patrick J. McGovern started *Computerworld*, a newsweekly for "the computer community," to tell computer buyers the unvarnished truth about things like disk crashes and system failures.

Since then, *Computerworld* has chronicled all of the big developments of the past four decades: relational databases, personal computing, the Internet, Y2k, open-source software, wireless devices and the rise of the chief information officer.

You already know about Grace Hopper, Max Hopper, Steve Jobs and outsourced jobs. You're familiar with high-tech miniaturization to the point that we're typing with the tips of our thumbs on BlackBerry devices. You've been subject to Moore's Law, Murphy's Law and the Sarbanes-Oxley Act.

But what I find just as interesting as the megatrends and milestones are the stories that won't make it into the history books: the industry flops, quirky inventions and computer glitches — with headlines like "Woman Dead Three Years Gets Medicaid." Consider the hand-cranked laptop, patented 10 years ago. When the battery started to run down, a red-alert message would tell the user to start "turning a winding key . . . similar to winding up a large windup alarm clock," according to U.S. Patent No. 5,630,155.

When I started at *Computerworld*'s Washington bureau in 1984, I used a PortaBubble word-processing machine with magnetic bubble memory and an acoustic coupler to send stories to headquarters. It was the size of a microwave oven and just as heavy to lug around.

Bubble memory didn't catch on, though, because semiconductor memory got bigger, better and cheaper. The PortaBubble's maker, Teleram Communications Corp., went bankrupt in 1985 because journalists switched in droves to RadioShack Corp.'s much lighter TRS-80 laptop.

And it's always fun to watch conventional wisdom turn out to be spectacu-

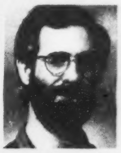
Continued on page 20

ILLUSTRATION BY RANDY LYHUS

[10 PEOPLE IN IT WHO MATTERED OVER THE PAST 40 YEARS (BUT YOU MAY NOT KNOW WHY)]

The megastars in the IT industry over the past four decades are easy to name. The accomplishments of Bill Gates, Steve Jobs, Scott McNealy, Larry Ellison, Linus Torvalds and others are well known. But clearly there have been many more who have helped turn IT from the narrow back-office operation of yesteryear into the ubiquitous corporate necessity it is today. *Computerworld* has come up with a short list of those who deserve broader recognition for IT's global success. – **MARK HALL**

WHO: Carol Bartz
WHAT/WHERE: Executive chairman, Autodesk Inc.
WHY: Changed a sleepy vertical application company into a diversified $1.5 billion software industry powerhouse. She became president, CEO and chairman of Autodesk in 1992 after rising through the ranks of Digital Equipment Corp. and Sun Microsystems Inc.



WHO: Dan Bricklin
WHAT/WHERE: Co-founder, Software Arts Inc.
WHY: Invented the electronic spreadsheet with the introduction of VisiCalc in 1979. One factor in VisiCalc's demise was advice from a lawyer not to patent the program.

WHO: Edgar (Ted) Codd
WHAT/WHERE: IBM fellow
WHY: Father of the relational database with his seminal 1970 paper, "A Relational Model of Data for Large Shared Data Banks." Codd died at the age of 79 in 2003, leaving behind a $13 billion market.

WHO: John J. Cullinane
WHAT/WHERE: Founder, Cullinet Software Inc.
WHY: Creator of the packaged software market and first pure software company to go public – and to run a Super Bowl ad.

WHO: Whitfield Diffie
WHAT/WHERE: Chief security officer, Sun
WHY: Co-inventor with Martin Hellman of public-key encryption software, with the publication of the paper, "New Directions in Cryptography."

WHO: Bill Inmon
WHAT/WHERE: CEO, Inmon Data Systems Inc.
WHY: Coined the term "data warehouse" in 1990 and is considered the father of the $28 billion industry.

WHO: H. Ross Perot
WHAT/WHERE: Founder, Electronic Data Systems Corp. and Perot Systems Corp.
WHY: Iconic business maverick who blazed trails to deliver IT services to corporate users.

WHO: Jon Postel
WHAT/WHERE: Director, computer networks division, University of Southern California's Information Sciences Institute
WHY: Helped create and document numerous standards and protocols for the Internet, including TCP/IP, SNMP and DNS.

WHO: Dennis Ritchie
WHAT/WHERE: Bell Labs fellow
WHY: Developed the C programming language, the foundation for the portability of Unix to different hardware systems.

WHO: Alan Shugart
WHAT/WHERE: Founder and CEO, Shugart & Associates and Seagate Technology
WHY: In 1959, led the IBM team that gave us the first floppy disk, the 8-in., 5MB Ramac. In 1979, he founded Seagate, which gave us the 5 1/2-in. disk drive that helped fuel the PC revolution.

PEOPLE'S CHOICE

1	Dan Bricklin
2	Jon Postel
3	Dennis Ritchie
4	Alan Shugart
5	Ted Codd
6	Ross Perot
7	John Cullinane
8	Bill Inmon
9	Whitfield Diffie
10	Carol Bartz

SOURCE: ONLINE POLL AT *COMPUTERWORLD.COM*. MORE THAN 200 VOTES CAST

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_INFRASTRUCTURE LOG

_DAY 68: The business climate is constantly changing. Our IT environment is completely rigid. We can't align IT to meet the larger business needs. I told Gil we need an SOA so we can be proactive for once.

_Gil had an idea. He brought in contractors and made the entire office "modular" and "flexible." Gil, I am not a hamster.

_DAY 70: This should free us up: IBM SOA Solutions built with IBM WebSphere®, the leading integration platform. Now we have the hardware, software and services for a flexible IT infrastructure. IBM has helped 3,600 companies implement an SOA. And getting started was easy. Our business is built for change.

_I don't have to crawl with my coffee anymore. It's great.

IBM.COM/**TAKEBACKCONTROL**/FLEXIBLE

[THE TOP 10 PRODUCTS OF THE PAST 40 YEARS]

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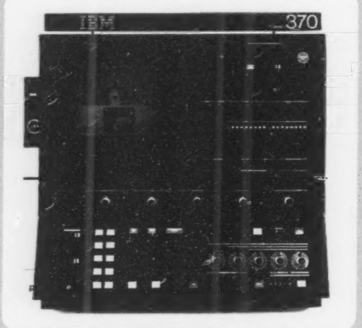

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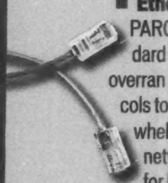

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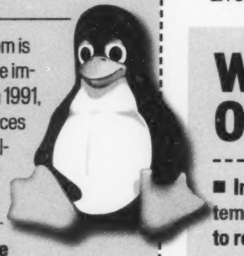

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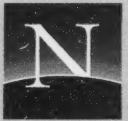

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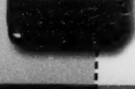
PEOPLE'S CHOICE

1. IBM's Personal Computer
2. Apple Macintosh
3. Arpanet
4. Apple II
5. VisiCalc
6. Microsoft Windows
7. Unix
8. Dynamic RAM
9. Floppy disk drive
10. Altair 8800

SOURCE: ONLINE POLL AT COMPUTERWORLD.COM; MORE THAN 200 VOTES CAST.



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Continued from page 17

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Back then, there were passionate discussions about computer ethics and the need for computer professionals to be good stewards of the information entrusted to them. Today, there's little protest over no-fly databases, government data mining, computer tapes disappearing from trucks and behavioral tracking of the Web sites we visit.

Until recently, computer professionals have generally seen themselves as upbeat problem-solvers, confident that anything is possible given enough time to code it. That confidence has been shaken in the past few years, thanks to cost-cutting, layoffs, skimpy raises and the ever-present fear of outsourcing. But when I read the profiles of the next generation of IT leaders, which appear later in this special report, I was impressed by their understanding of the challenges ahead. Their dedication to battling complexity, improving security and cutting energy consumption — plus their recognition that technology has its downsides — give me hope that the best of IT is yet to come. ■

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THE 10 BIGGEST TECHNOLOGY FLOPS OF THE PAST 40 YEARS

Hype is the coin of the realm in the technology business. If you listen to vendors and the media, it might seem that every new product will be the Next Big Thing. While some live up to all the fuss, many don't – and some fail spectacularly. – **DAVID HASKIN**

■ **Apple Newton:** In 1993, Apple Inc. hyped its Newton PDA with clever advertising and relentless word-of-mouth campaigns. So, why did it flop? One reason was the supposed inaccuracy of the handwriting recognition. Still, before it faded away in 1998, the Newton had paved the way for today's PDAs.

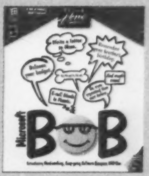
■ **DIVX:** The idea, hatched by electronics retailer Circuit City in the late '90s, was interesting: You would rent movies on DIVX discs that you could keep and watch for two days. Then you'd toss or recycle the discs or pay a continuation fee to keep viewing them. But consumers didn't warm to the scheme, and DIVX died a rapid death.

■ **Dot-bombs:** Oh, those glorious days in the late '90s! One poorly conceived dot-com company after another was launched with an influx of venture capital. The lucky ones went public and saw their stock prices go through the roof – and then plummet after the bubble burst in 2000. Many others never made it that far before fizzling out.

■ **IBM PCjr:** Like the Apple Newton, IBM's PCjr was ahead of its time. Unlike Newton, PCjr was poorly designed. Released to great fanfare in 1984, IBM hoped the product would catch on in homes and schools. But the machine was expensive, unpleasant to use and didn't come with a hard drive. IBM pulled the PCjr from the market in 1985.

■ **Internet currency:** Remember Flooz and Beenz? They provided online currency, which many dot-com proponents in the late '90s considered the secret to e-commerce success. Unfortunately, consumers inexplicably preferred to use real money and credit cards.

■ **Iridium:** It was an undeniably brilliant idea back in 1998 to launch 66 satellites and link them with mesh technology for routing calls to and from any point in the world. But Iridium's technology cost an immense amount of money to deploy, and most users were resistant to paying dollars per minute of call time and carrying around a phone larger than a brick.



■ **Microsoft Bob:** Bob, released in 1995, was a graphical user interface built on top of Windows 3.1. The idea was to make Windows palatable to nontechnical users, but most saw the interface as an insult to their intelligence. Bob eventually faded away, and even Microsoft executives agreed it had been a miserable failure.

■ **The Net PC:** The Net PC was yet another small, overpromoted computing device aimed at home users.

■ **The paperless office:** Just as futurists in the 1950s boldly but inaccurately predicted that computers would cut our workdays in half, offices without paper have turned out to be a pipe dream. Take a look around your office: Is it paperless yet? Will it be paperless anytime soon? We didn't think so.

PEOPLE'S CHOICE

1 Microsoft Bob
2 Dot-bombs
3 The paperless office
4 Iridium
5 DIVX
6 Internet currency
7 Virtual reality
8 WebTV
9 E-books
10 OS/2

SOURCE: ONLINE POLL AT COMPUTERWORLD.COM; MORE THAN 30,000 VOTES CAST

■ **Virtual reality:** The idea sounds fantastic – put on special goggles, gloves and perhaps other connected clothing and immerse yourself fully in a 3-D game, training session or other activity. But VR never took off commercially, though some useful niche applications – such as providing surgeons with a way to practice tricky medical procedures – still exist.

Haskin is a *Computerworld* contributing editor.

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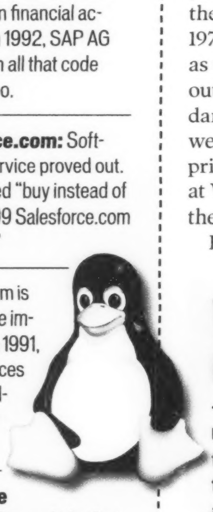

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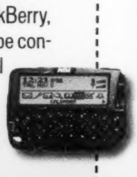

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Betts *joined* Computerworld *in June 1984. He can be contacted at mitch_betts@computerworld.com; his MCI Mail account no longer works.*

THE 10 BIGGEST TECHNOLOGY FLOPS OF THE PAST 40 YEARS

Hype is the coin of the realm in the technology business. If you listen to vendors and the media, it might seem that every new product will be the Next Big Thing. While some live up to all the fuss, many don't – and some fail spectacularly. – **DAVID HASKIN**

■ **Apple Newton:** In 1993, Apple Inc. hyped its Newton PDA with clever advertising and relentless word-of-mouth campaigns. So, why did it flop? One reason was the supposed inaccuracy of the handwriting recognition. Still, before it faded away in 1998, the Newton had paved the way for today's PDAs.

■ **DIVX:** The idea, hatched by electronics retailer Circuit City in the late '90s, was interesting: You would rent movies on DIVX discs that you could keep and watch for two days. Then you'd toss or recycle the discs or pay a continuation fee to keep viewing them. But consumers didn't warm to the scheme, and DIVX died a rapid death.

■ **Dot-bombs:** Oh, those glorious days in the late '90s! One poorly conceived dot-com company after another was launched with an influx of venture capital. The lucky ones went public and saw their stock prices go through the roof – and then plummet after the bubble burst in 2000. Many others never made it that far before fizzling out.

■ **IBM PCjr:** Like the Apple Newton, IBM's PCjr was ahead of its time. Unlike Newton, PCjr was poorly designed. Released to great fanfare in 1984, IBM hoped the product would catch on in homes and schools. But the machine was expensive, unpleasant to use and didn't come with a hard drive. IBM pulled the PCjr from the market in 1985.

■ **Internet currency:** Remember Flooz and Beenz? They provided online currency, which many dot-com proponents in the late '90s considered the secret to e-commerce success. Unfortunately, consumers inexplicably preferred to use real money and credit cards.

■ **Iridium:** It was an undeniably brilliant idea back in 1998 to launch 66 satellites and link them with mesh technology for routing calls to and from any point in the world. But Iridium's technology cost an immense amount of money to deploy, and most users were resistant to paying dollars per minute of call time and carrying around a phone larger than a brick.

Microsoft
BOB

■ **Microsoft Bob:** Bob, released in 1995, was a graphical user interface built on top of Windows 3.1. The idea was to make Windows palatable to nontechnical users, but most saw the interface as an insult to their intelligence. Bob eventually faded away, and even Microsoft executives agreed it had been a miserable failure.

■ **The Net PC:** The Net PC was yet another small, overpromoted computing device aimed at home users.

■ **The paperless office:** Just as futurists in the 1950s boldly but inaccurately predicted that computers would cut our workdays in half, offices without paper have turned out to be a pipe dream. Take a look around your office: Is it paperless yet? Will it be paperless anytime soon? We didn't think so.

■ **Virtual reality:** The idea sounds fantastic – put on special goggles, gloves and perhaps other connected clothing and immerse yourself fully in a 3-D game, training session or other activity. But VR never took off commercially, though some useful niche applications – such as providing surgeons with a way to practice tricky medical procedures – still exist.

Haskin is a *Computerworld* contributing editor.

PEOPLE'S CHOICE

1	Microsoft Bob
2	Dot-bombs
3	The paperless office
4	Iridium
5	DIVX
6	Internet currency
7	Virtual reality
8	WebTV
9	E-books
10	OS/2

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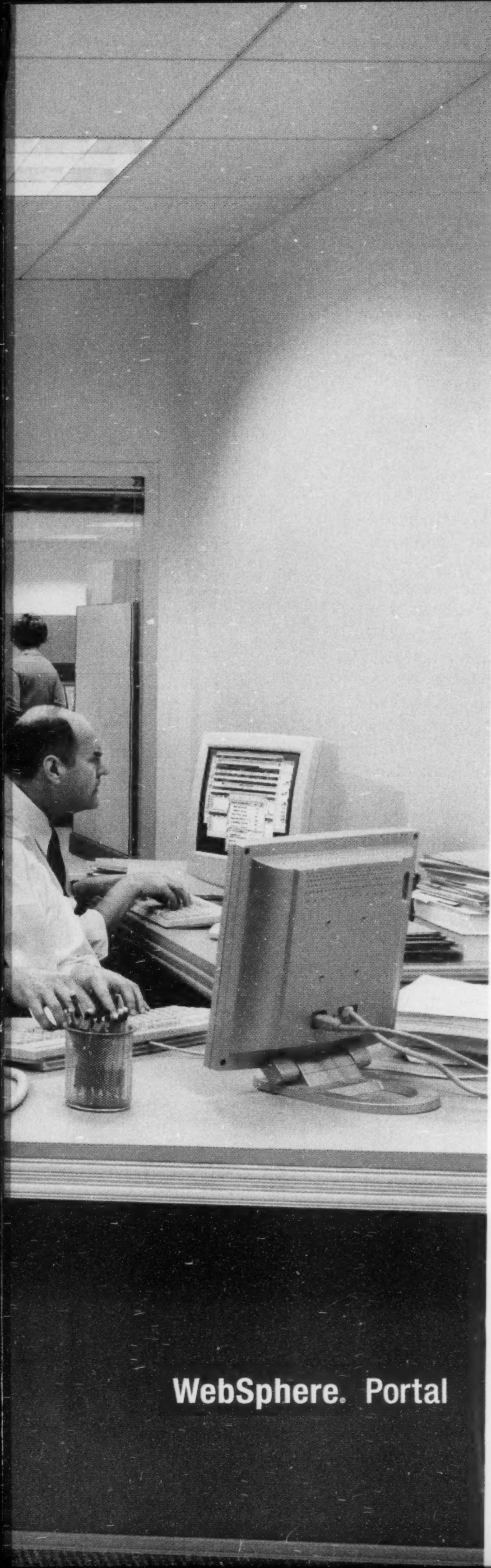

_INFRASTRUCTURE LOG

_DAY 74: This is too much. We're stuck dealing with multiple interfaces and apps. We can't find the relevant info we need. I feel like it takes six of us to do one person's job.

_Six Gils? They better not all have to sign my time sheet.

_DAY 76: I'm taking back control with IBM WebSphere® Portal. It's the *fastest and easiest way to integrate everything* so we have seamless access to our information. Like Web 2.0 for the business environment, it gives each and every one of us a single, customizable interface.

_Back to one Gil. There's so much less of him to love now.

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A Tale of Two Readers

A pair of Computerworld's first subscribers miss the old days but look back on long, fruitful careers. **By Gary Anthes**

AS WE looked back on *Computerworld*'s 40-year history, we reached out to two longtime readers who have been part of the IT scene for more than four decades. Although they aren't entirely happy with the course IT has taken over the years, they both say they wouldn't trade their experiences in IT for anything.

MIKE GORMAN, DATABASE/CASE EXPERT

In 1967, Mike Gorman made $650 a month, and the computer he used — with far less power than a BlackBerry has today — cost his company $650 per hour.

A lot has changed in four decades.

And not all of it for the better, according to Gorman, now 66 and president of Whitemarsh Information Systems Corp. in Bowie, Md. "We fail to learn from the past," he says. "With every generation of hardware and software, we seem to reinvent the same things." Techniques for memory management are a prime example, says Gorman, a specialist in database systems.

"I fault the universities," he says. "There are not that many courses in real software engineering anymore. Back in the 1970s and early 1980s, there was a real effort to teach software architecture, software engineering, systems analysis and design. What's replaced that is courses that teach Oracle or Sybase or Microsoft, and the result is lousy database design, lousy software engineering."

With an undergraduate degree in math, Gorman joined the world of IT in 1966 as a Fortran programmer at Vitro Laboratories in Silver Spring, Md., where he worked on an IBM 7090 computer. While computer time then was more expensive than a programmer's salary by a factor of several hundred, that relationship has now been completely inverted, Gorman observes.

And that's had a perverse effect on the quality of systems today, he contends, because companies are willing to throw lots of computing resources at a problem but are stingy with the human resources needed to really make systems top-notch.

Gorman sums up his long career in IT this way: "IT has been very good to me. I got seven kids through college, compliments of IT. But I have no intention of retiring at all. I have too many things to do, and I'm having too much fun."

GERALD DeMAAGD, INFORMATION SECURITY SPECIALIST

Gerald DeMaagd traces his love of IT back 45 years, to his days as a programmer at General Motors Corp.

DeMaagd, now 70, earned a degree in economics and took his first job in 1962 as an operator of an IBM 1401 computer at GM. That mostly involved "pushing cards" and mounting tapes, but he soon advanced to 1401 programming, which meant writing code in the Autocoder assembly language.

"It was fun," he recalls. "The programs were fairly small; you could test them out yourself on the computer, watch the tapes move and get real feedback from the machine. I worked the second shift so I could play with it at night."

In 1967, DeMaagd moved on to Lear Siegler Inc., a defense contractor that was among the first companies to get one of the revolutionary new IBM System/360 mainframes. And that's where he became a charter subscriber to a new publication called *Computerworld*.

"*Computerworld* was the only publication that was really giving information, outside of IBM channels, as to what was going on inside IBM," he recalls. "For us, it was sort of the straight scoop on our main vendor."

Where else did he get IT information? "It was on-the-job experience," he says.

Over the years, DeMaagd joined Steelcase Inc. and then Jefferson Wells International Inc., an auditing services company, where he now works part time.

Of his 45 years in IT he says, "The one constant is the need for continuous learning. *Computerworld* helps with that." ■

THROUGH THE YEARS

A lot has changed in the IT industry over the years, including the look of *Computerworld*. A few examples from four decades:

COMPUTERWORLD
The Newsweekly for the Computer Community
COMPUTERWORLD IS LAUNCHED
First Newspaper For The Full Computer Community
COBOL, RPG Bested By New Language ?
DPMA, 1967

June 21, 1967

COMPUTERWORLD
THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY
Technology Makes Move Out of Core City Feasible
DP Draws Concern, Praise From Public, FJCC Told
Univac 9700 Offers Compatibility, Price
RCA Enters Third Month Of Keeping Users Hanging

Nov. 17, 1971

COMPUTERWORLD
INSIDE
Sun unit sears mini market at 10 MIPS
Borland to buy Ansa
New home for Nomad
Ashton-Tate eyes low-end publishing

July 13, 1987

COMPUTERWORLD
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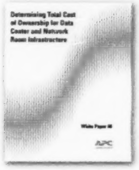

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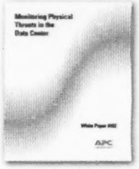

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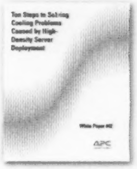

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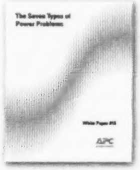

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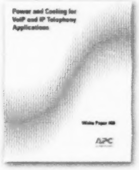

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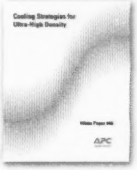

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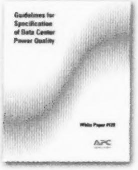

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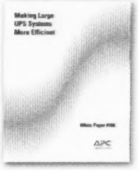

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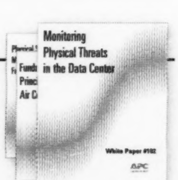

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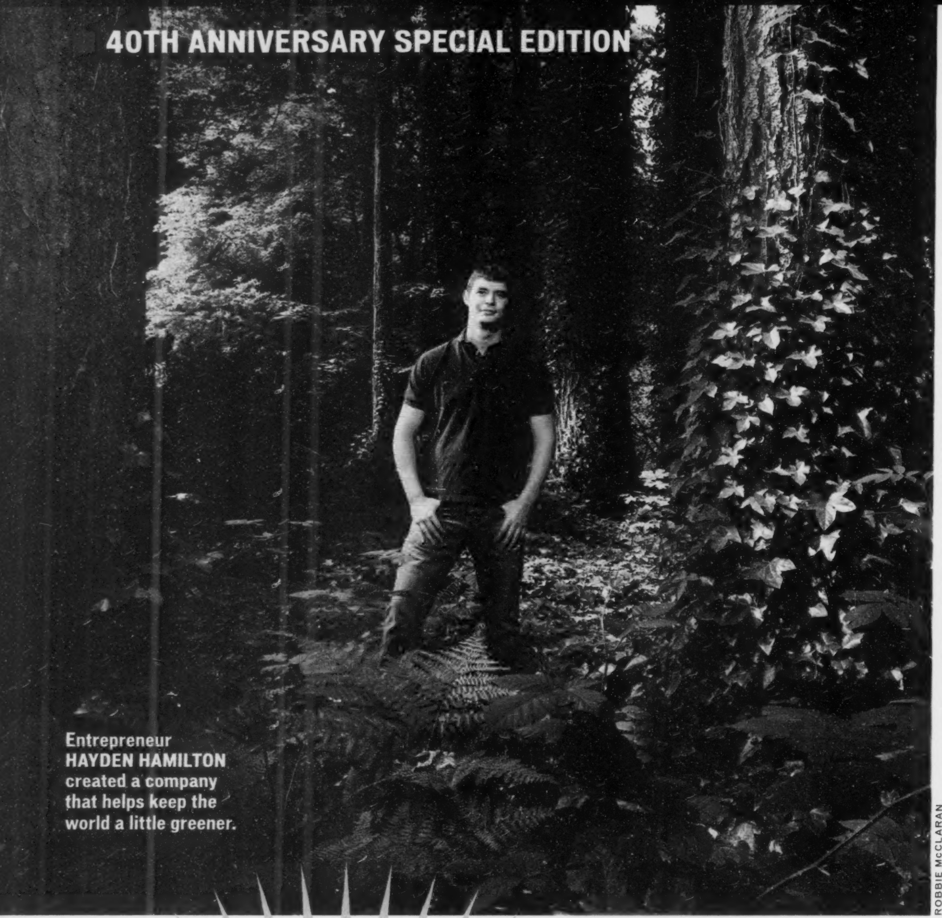


Entrepreneur **HAYDEN HAMILTON** created a company that helps keep the world a little greener.

ROBBIE McCLARAN

40 Under 40

40 INNOVATIVE IT PEOPLE TO WATCH, UNDER THE AGE OF 40

These next-generation IT leaders are building careers on their own terms, giving back in a big way and redefining what it means to be successful. **By Julia King**

ONE OF Hayden Hamilton's cherished childhood possessions was a soldering iron. He used it to tinker with stereo equipment and other electronics, creating one-of-a-kind gadgets in between launching a string of start-up businesses that included a gutter-cleaning operation and a snack shop — both before the age of 12.

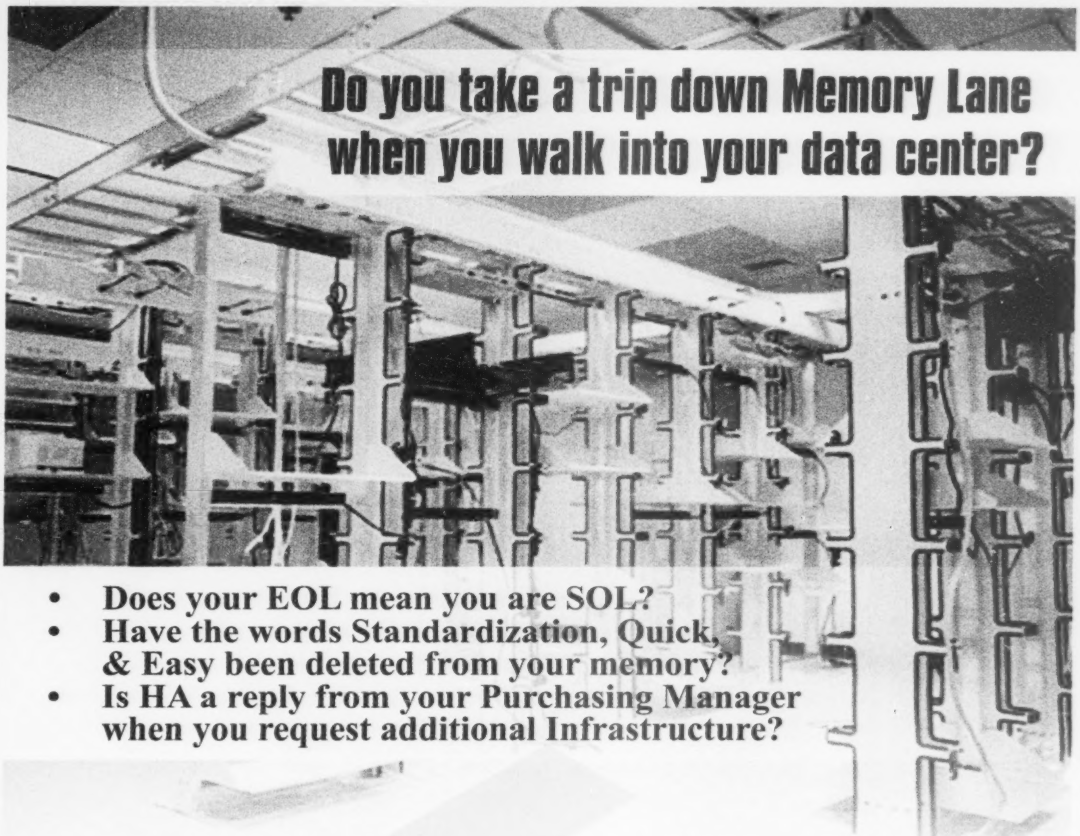
In college came a Web site design enterprise and a co-op bookstore that successfully challenged the campus monopoly and won a loyal customer following among budget-conscious university students.

"It just seemed particularly egregious to me that they bought books back from students at 15% of the cover price and then would sell them for 85% of the cover price," Hamilton says of the book venture.

Two years ago, Hamilton, now 30, founded ProgressiveRx, which offers deeply discounted medicine over the Web through an office in Bangalore, India. A year later, he launched the nonprofit Progressive Health Worldwide, which funnels medical supplies and technology to African aid agencies. His most recent start-up is GreenPrint, which creates and sells low-cost software that minimizes printer paper waste.

An intrepid entrepreneur and serial innovator with a passion for technology and zero interest in following a traditional corporate career path, Hamilton in many ways typifies the men and women on *Computerworld*'s list of 40 Innovative IT People to Watch, Under the Age of 40. Many are the sons and daughters of technologists or engineers and

Continued on page 30



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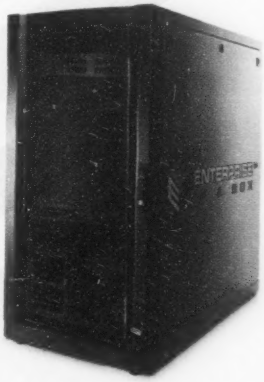

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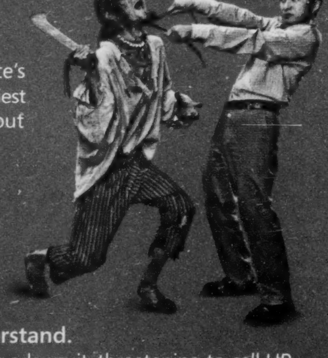
2. Beat them, then join them.
Life as a high-seas scalawag might not be so bad. You'll escape your cube, see the world, pillage and plunder, and generally have a grand old time. Study up on sea chantys, learn to dance a jig, wear a parrot on your shoulder, and you're off.

3. Walking the plank.
Pirates are big on getting their victims to walk the proverbial plank. Use this against them. Pose as a plank salesman; pitch a new, better plank, made from space-age composite materials, let's say. Ask them to "test the plank" and, once they're out on it, reveal the truth. The humiliation might just get them to leave.

4. Pay them off.
Pirates are obsessed with booty, or treasure. A supply of gold chocolate coins placed in a bag or chest will dazzle them. They'll want to bury it somewhere, secretly, and will lose whatever interest they had in you in the first place.



5. Use your skills of Beard-Fu.
Beard-Fu is the ancient art of facial hair combat. Grab and pull the Pirate's beard, twist his moustache, yank a sideburn—if done properly, it's the deadliest of all martial arts. Finding a Beard-Fu teacher can be hard nowadays, but instruction books are available and there's probably a Web site.

6. Use threats they can understand.
Threatening to call 911, threatening a lawsuit, threatening to call HR—these mean nothing to a seasoned old salty dog, raised on the sea with no law but the point of a cutlass. So don't even bother. Threaten instead to shiver his timbers with a fifty-pound cannonball and you'll see his attitude change quickly.

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40 Under 40

Editors' Picks

Computerworld's search for 40 innovative IT people under the age of 40 began this spring, with a call for nominations sent out to the IT industry and _Computerworld.com_ newsletter subscribers. Next, nominees were asked to fill out a survey in which they were asked about their accomplishments and current projects, among other things.

A panel of _Computerworld_ editors then reviewed those surveys, looking in particular for candidates whose career accomplishments best fit these statements:

- **Demonstrates fresh thinking.**
- **Uses cutting-edge technology to solve complex business problems.**
- **Shows a clear grasp of how to motivate people and/or lead an IT department.**
- **Makes big changes through technology.**
- **Has the vision or ability to apply IT in unique or innovative ways.**
- **Understands the breadth of IT management functions from technology to budgeting to interdepartmental relations.**

The editors then made their choices.

We present profiles of those 40 innovators, culled from their surveys and interviews, beginning on page 35.

Continued from page 26

count their parents among their earliest and most influential mentors. Steve Jobs' name also pops up frequently as the person who most influenced their careers.

Consider Bogdan Butoi. "For me, technology is like a family thing," says the Romanian native, who came to the U.S. to pursue a Ph.D. in mathematics after earning a computer science degree in his homeland. "My mother was a database administrator. My dad was a hardware engineer who developed computers and terminals. In communist countries, there were no baby sitters. When my parents did research for eight hours, I ended up in their workplaces. I started writing small [computer] programs and punching cards in the second grade. Then I got a PC, and everything else is history."

Butoi, 35, is now chief technology officer at Animas Corp., a Johnson & Johnson company that makes insulin pumps and other medical products and supplies. He's working on developing a new diabetes management system that will allow patients to download information to configure their insulin pumps from their home computers. Physicians can use the same system to monitor insulin delivery and more tightly control patients' blood glucose values.

"I'm not good at painting, and I'm not good at singing. Technology is my way of being creative," Butoi says.

MAKING A DIFFERENCE

Creating and applying technology for the greater good is a recurring theme among *Computerworld*'s 40 Under 40 innovators. These are people who frequently place passion before profits.

"We see an overarching trend [among under-40 technologists] in that they have the desire and the capability to make a difference," says Diane Morello, an analyst at Gartner Inc. "We see not only a societal shift, but [younger technologists] now have the wherewithal to make a difference, because technology is priced so that not only corporations can afford it."

Naren Ramakrishnan, 35, a native of India and an associate professor at Virginia Tech in Blacksburg, Va., is working on a "storytelling algorithm" that could significantly speed the discovery of what causes certain diseases and the development of new drugs to control or cure them.

"The idea with storytelling is to make connections between a lot of the information that is already published out there," Ramakrishnan explains. Several years ago, a scientific study identified a link between magnesium and migraines. Researchers discovered the connection purely by studying the literature, not by doing experiments in a lab. Now, the Internet has made an almost limitless volume of information available, Ramakrishnan points out. "We view it as one massive lot of data just waiting for things to be discovered," he says.

Ramakrishnan is also conducting research in the area of online social networking. "One of the things we have noticed is that there is a lot of power loss," he says. "Just as 80% of the world's wealth is concentrated on 20% of the Earth, 80% of Internet traffic goes to 20% of online sites.

"I don't know how this will equalize, but I think it is the right time to investigate whether we can use the Internet to engineer better communities. We've grown to the realization that the Internet can be used for other purposes" besides building profits, he says.

A WIDER CAREER PATH

Not surprisingly, the under-40 innovators thrive on change. Their career paths are typically atypical.

Continued on page 32

Avenues to Innovation

MIN WU, who grew up in Bejing, learned computer programming in the third grade. The daughter of two engineers, she recalls spending summers at the Chinese Academy of Sciences, close to her father's research laboratory.

Today Wu, 32, conducts research of her own at the University of Maryland, where she is an associate professor of computer science.

Her specialty is information security forensics. Wu and her colleagues have developed an invisible ID that can be embedded in digital content, such as films, music and pictures, to protect it from unauthorized use. A patent is pending for the technology, which Wu views as a valuable contribution to continued IT innovation.

"Without a way to protect intellectual property, we will see a lot of hurdles to new technology put up," she explains. "My focus is working toward further innovation of new technologies."

– JULIA KING

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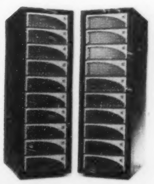

Think Thin. Think Green. **Think 3PAR.**

The Well-Examined Career

TODAY'S young innovators couldn't care less about corporate ladders or corner offices. They're self-designing unique careers according to their personal interests – and at their own hyperspeed pace.

Thomas S. Chin, 32, had a passion for software long before joining HotJobs.com as a 22-year-old intern. Within two months, he was the start-up's chief scientist, working day and night.

"There was a two- or three-year duration when I worked seven days a week. I was pretty much a workaholic," Chin recalls.

In 2000, at the age of 25, he retired with enough money to never have to work again. But retirement didn't last long. In 2005, Chin designed and developed BitShelter, an online object store system that operates on heterogeneous hardware. His current project is PhotoShelter, an online archive and marketplace for professional photography.

Thomas S. Chin's latest project is an online photography marketplace and archive.

Hayden Hamilton, 30, turned down a big promotion and ultimately left Ford Motor Co. after sending the company's executive leadership a memo outlining his ideas about huge opportunities he believed the automaker should exploit.

"The VP said he thought they were fantastic ideas and wanted to promote me to be the right hand of the COO. But I came to realize that it would pull me in for the next several years and seriously put me on this path. I didn't think this was what I wanted to do with my life," he recalls.

Ari Juels, 37, chief scientist and director at RSA Laboratories, took what he calls "a significant detour into the realm of literature" before shifting into technology. He has completed a novel, which an agent is now promoting, and he has an avid interest in tea, Daoism and the contemplative life.

"The drive for technology and the current economic mentality aims at the production of more wealth," Juels says. "I hope technology can be commandeered to solve the problem of human happiness. That could mean a cleaner environment or richer human contact. It means changing the mind-set with which we apply technology."

At RSA Laboratories, Juels is working on identity authentication technology in the form of a key fob that will automatically transfer a user's personal information and preferences to any device – from a telephone or vending machine to a supercomputer.

"I do try to make a stronger connection between security and human needs than I think has been traditional in my field," he says. "It's personally fulfilling to see technologies translated into products."

– JULIA KING

Continued from page 30

"The focus of those under 40 is so much wider. It's not constrained by historical hierarchical patterns," says Gartner's Morello. "These are people who are rapidly participating in and adapting to social networking environments," where hierarchy might play only a bit role.

Michael Fowler started working at Constellation Energy Group Inc., which was then Baltimore Gas & Electric Co., five days after graduating from high school. He had moved to Baltimore to follow a love interest.

"Back in the mid-1980s, there was a shared PC for the department. I was the young office guy who gravitated to that box and figured out how to make it work," he recalls. At night, he worked toward his degree at Johns Hopkins University. Since then, Fowler has rotated through the company's power generation unit, its trading affiliate and its utility business. He says if there hadn't been an opportunity to learn and work in all areas of the business, he probably would have left the company a long time ago.

Now 39, Fowler is responsible for risk systems. "We're attempting to do a lot of intelligence-gathering with respect to physical threats, computer threats and market risk," he says.

Although he's a seasoned technologist with several awards and honors for technology innovations, Fowler says he's a business person first. "If you're going to be successful, you absolutely have to be knowledgeable about what your business wants to do," he says. "You also have to know technology so you can show them what is possible. Many times, technology is a black box to the business. If you can understand what the business is about, you can show them prototypes and iterate from there."

Craig Young, who wrote his first commercial software application at the age of 10, doesn't consider himself a technologist first either. Now 36, and vice president of IT at Verizon Wireless, he launched his career in wireless communications as a technician installing in-car cell phone systems.

"I consider myself more of a translator," says Young. "There is not a huge array of people who can talk technology in terms that business can understand. One of the challenges I see in new recruits is that they're purely technology-focused. The best advice I can give is to know your business, because IT is ancillary. A lot of times you see projects fail because we in IT don't translate projects to a business need."

ALL WORK, LITTLE PLAY

One area where most of the under-40 set have yet to make significant progress is work/life balance. For example, Animas' Butoi admits to working 80 hours a week on average. It's a familiar theme among this group.

"I think work/life balance is incredibly important," says Hamilton. "But I'm not leading by example on that front," he quickly confesses. When he does have downtime, he's likely to be outdoors hiking, fly-fishing, skiing or rafting.

"Work/life balance? It's not existent," says Fowler. Still, he feels it's important to unplug totally from time to time. His most recent downtime was spent camping in a remote part of Costa Rica.

"Usually," he says, "when I'm going away, it's to places where I can't be found." ■

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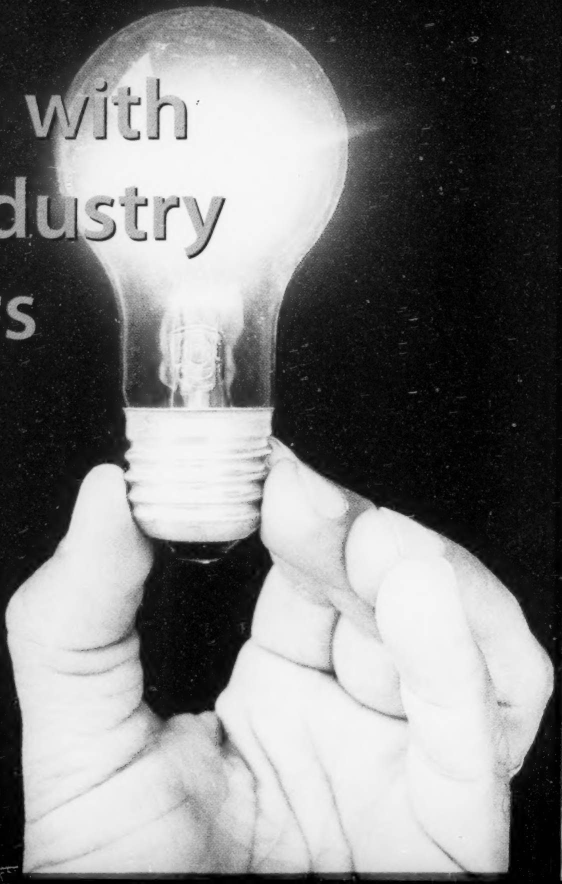

KATHERINE LAMBERT

40 Under 40

AMBER PITTSER

A Persuasive Public Servant

At 27, this civilian rookie is working to institute IT portfolio management throughout the Army.

CHANGING THE way the U.S. Army does business can be more arduous than turning around a tank. But that's just what the Army CIO's office of governance is trying to do with its effort to streamline IT infrastructure systems and eliminate redundancies. The plan, while promising to save millions of IT dollars and improve efficiency, also involves getting high-ranking officers in each independent unit to divulge the details of their IT systems and, in some cases, change their IT operations.

The job requires determination, the ability to persuade others and a thorough knowledge of the Army's IT needs. Amber Pittser is leading the charge.

"I'm driven to challenge the status quo," says Pittser, a civilian employee who came to the Army through its Civil Service Leadership Program after graduating from Oklahoma State University. "You have to be persuasive and communicate the urgency while showing them the benefits they'll receive from [streamlining operations]."

Pittser's group was tasked by the secretary of the Army to write a first-of-its-kind document telling all Army IT purchasers how to buy IT products and requiring them to report their spending through a servicewide IT portfolio management system. She then met with top brass across the globe to explain why it was a good idea.

"She doesn't take no for an answer when dealing with senior leadership," says Lt. Col. Tony Munson, who works with Pittser in the CIO's office. He recalls when Pittser met with a three-star general to ask him to fund the portfolio management application. "She sold it. He gave us $5 million to buy that application," Munson says. Today, the IT portfolio repository manages $7 billion in technology and is becoming the Army's authoritative IT data source.

Pittser, 27, is one of the young guns in a veteran workforce at Army headquarters. Some of her colleagues have two decades of government work experience. "Most people here could be my parents," she jokes. But she takes her responsibility as the Army's future seriously.

"In Amber, you have a new outlook on the way the Army should be run. She's dedicated to the job, not just to the next grade," Munson says, "She's making objectives for herself and making sure she achieves those objectives. Esprit de corps — that's what we call it."

Looking ahead, Pittser says she would like to broaden her horizons in the Army. "A key critical technology is the wireless sensor," she says. "Expanded use of sensor technologies in combat zones will make our targeting systems more accurate and ultimately save lives." ■

Collett *is a* Computerworld *contributing writer. Contact her at stcollett@aol.com.*

Title: **IT management specialist**

Organization: **U.S. Army**

Who in the technology industry most influenced your career? **"Col. Luwanda Jones, one of my former supervisors. She has an ability to bring people together to solve tough issues in the complex and often confusing world of Army IT, and her passion for public service is contagious."**

The best thing about today's technology: **"Today's advancements in technology have given people with disabilities the ability to live fuller lives and achieve things we never thought possible even just a few years ago."**

The worst thing about today's technology: **"Some people have simply forgotten the importance of human-to-human interaction. Sometimes face-to-face meetings are more effective than collaboration through e-mail or other electronic media."**

Technology can . . . **"Advance the human race."**

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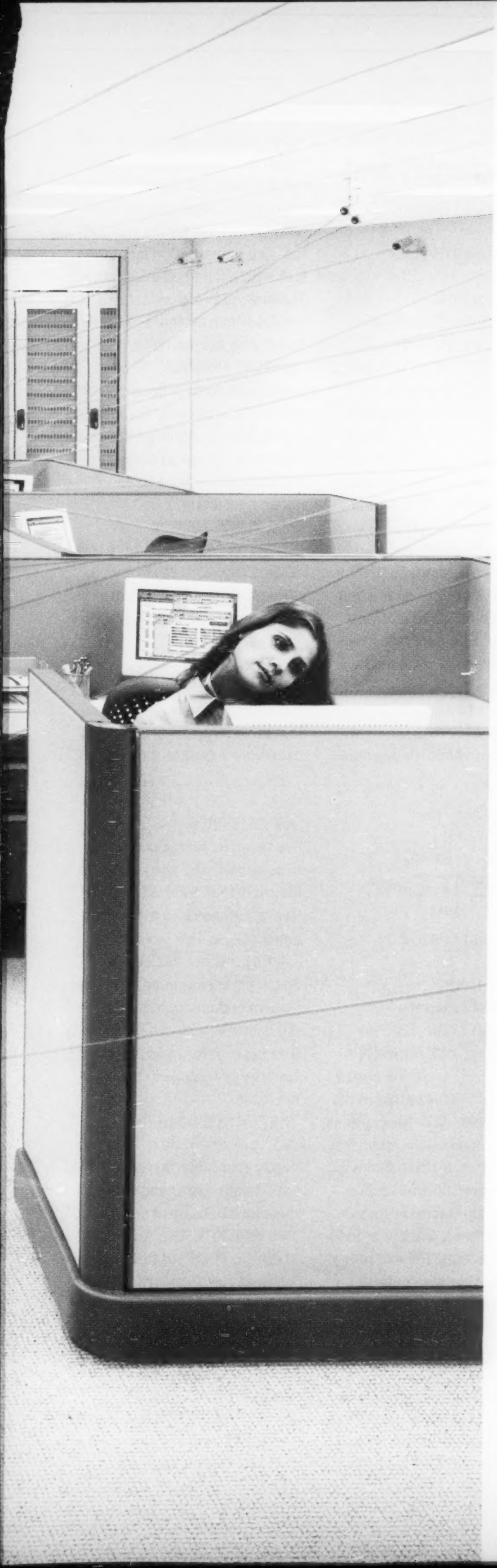

_INFRASTRUCTURE LOG

_DAY 25: Our ad hoc security solutions are out of control. We're not prepared for new threats. We're always playing catch-up. We're leaving ourselves vulnerable and exposed.

_Gil's had a security epiphany: high-powered lasers. They're everywhere. I keep zapping myself as I type.

_DAY 26: I'm taking back control with an end-to-end security solution from IBM. Their security service experts can come in and help us assess our security needs. IBM Tivoli® helps us monitor and respond to threats while managing access to our critical information. And the IBM System z™ mainframe's encryption and multilevel security features are legendary.

_That's great. But it won't bring back my left sideburn.

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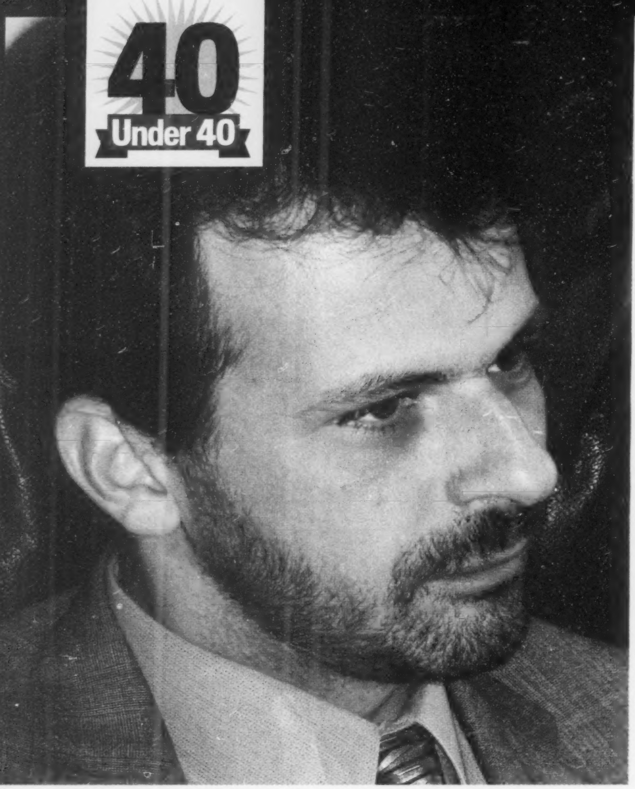
40 Under 40



BOGDAN BUTOI

Innovator in Diabetes Care

TITLE: **CTO**
ORGANIZATION: **Animas Corp., a Johnson & Johnson company**

30-second biography: Prior to coming to the U.S. in 1995 to pursue a Ph.D. in mathematics, Butoi served as director for operating systems and software development at the Romanian subsidiary of Apple Inc., where, at 20, he was the company's youngest vice president. Later, he was Animas' third employee, and in 2000 he became CIO. In that role, he led IT through an IPO, an acquisition and Animas' own acquisition by Johnson & Johnson in 2005.

Current project: "I am heading the design and development of a diabetes management system that will allow customers to download and configure their insulin pumps from any computer at home. The same software will allow doctors to better understand the insulin delivery that is performed by our pump, leading to better and tighter control of the blood glucose values for our customers."

Most-critical technology for IT this year: "SOA. Suddenly, your apps are just like Lego blocks. When the 'things' you created don't meet your needs anymore, you rearrange them."

Book most recently on your nightstand: *Dealing With Darwin: How Great Companies Innovate at Every Phase of Their Evolution*, by Geoffrey A. Moore

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JEFFREY D. BLACKWELL

Technologist and CPA Combined

TITLE: National director of technology, Financial Advisory Services
ORGANIZATION: Deloitte & Touche USA LLP

30-SECOND BIOGRAPHY: A licensed CPA in Texas, Blackwell, 37, has been immersed in the financial services field his entire career, with more than 14 years at Deloitte. He is currently national director of technology for the Financial Advisory Services group, which includes 1,200 staffers and is responsible for bringing in $400 million in revenue. In this role, Blackwell ensures that strategic systems, such as pipeline and backlog management, scheduling and knowledge management, are in place. Blackwell began his career at Deloitte in the Business Systems Consulting practice, where he focused on technologies for the real estate and construction industries. He's also a Certified Information Technology Professional with the American Institute of Certified Public Accountants.

CURRENT PROJECT: "Overseeing efforts to expand our analytic and forensic technology capabilities, including electronic discovery, forensic computing, database analytics and economic consulting."

WHO IN THE TECHNOLOGY INDUSTRY MOST INFLUENCED YOUR CAREER? "My father, a 30-year IBM man, who introduced me to computing at a very young age."

THE BEST THING ABOUT TODAY'S TECHNOLOGY: "Access to information. The challenge now is in the interpretation – turning data into meaningful information."

JASON LISH

Military Man Turned IT Exec

TITLE: Senior IT security manager
ORGANIZATION: Honeywell Aerospace

30-SECOND BIOGRAPHY: Lish, 39, began his career in the U.S. Air Force as a telecommunications specialist and spent two years in Keflavik, Iceland, where he was responsible for a top-secret cryptographic network and the island's satellite systems. He was recognized as Communications and Information Professional of the Year in 1999 by the secretary of Defense. After a four-year career in the military, Lish joined Honeywell International Inc. in 2001 as a network analyst. He is now responsible for Honeywell's application and SAP security.

CURRENT PROJECT: "An initiative to implement security controls into the software delivery life cycle to reduce vulnerabilities introduced into production applications. This includes security tools to enable the development community to scan its own code for vulnerabilities, an extensive application security training program and embedded security processes in the existing model."

THE BEST THING ABOUT TODAY'S TECHNOLOGY: "Information at your fingertips enabling us to do things faster and better, almost an extension of our minds."

THE WORST THING ABOUT TODAY'S TECHNOLOGY: "The inherent risk to safety due to the lack of knowledge or education by the end user, leading to issues such as identity theft, industrial espionage and so on."

BOOK THAT WAS MOST RECENTLY ON YOUR NIGHTSTAND: *Leadership and Self-deception*, by The Arbinger Institute

CHRIS HARTLOVE

HANS KELLER

An IT Exec Finds Perfect Waters

This sea lover is implementing handheld applications to aid dolphin and shark collections. By Thomas Hoffman

WHEN Hans Keller was a teenager in Connecticut in the 1980s, he became a certified scuba diver and dreamed of becoming a marine biologist.

So when Keller became the IT director at the National Aquarium in Baltimore in 1999, he was still on the mark to achieve his goal of contributing to marine science.

In addition to orchestrating several cutting-edge IT development efforts for the aquarium during his eight-year tenure, Keller has been able to hop into a giant tank every other month to feed stingrays and other tropical fish. Not a bad side benefit for a job that saw him promoted to CTO in 2001.

"It's a blast!" exclaims Keller, 38. "My favorite time of year to do it is February. You walk across the street with your dive bag, change and hop in the water when it's 20 degrees outside."

Keller's adventurous spirit is reflected in both his work for the National Aquarium and his collaboration with IT executives at other zoos and aquariums worldwide. In 1999, Keller and his nine-person staff started work with the Denver Zoo and the Bermuda Aquarium Museum and Zoo to develop a system called Tracks, an inventory management system that each of the facilities uses for genealogical and medical record-keeping for all of its animals.

Since joining the National Aquarium, Heller has also implemented a new financial suite, a business intelligence suite and numerous handheld applications to provide better information about the aquarium's dolphin and shark collections.

Keller's leadership abilities came to the fore during an eight-year stint in the U.S. Air Force that began in the late 1980s. As a senior airman stationed at Sheppard Air Force Base in Texas, Keller spearheaded the development of a mobile command center. That achievement was impressive on two counts: The effort brought the base into the Computer Age, and it was orchestrated by a young, low-ranking enlisted man.

"[He] took it upon himself to lead the way in making sure that [systems] for the entire base were compatible with each other," says Timothy T. Timmons, a retired Air Force colonel who was the deputy commander of the support group in which Keller worked.

"The thing that impressed me most about [Keller] was his positive, can-do attitude on things," says Timmons. "He was constantly on my doorstep to ask about receiving training, which he did."

Title: Chief technology officer

Organization: National Aquarium in Baltimore

Most critical technology for IT this year: "Software as a service will have one of the largest transformational effects on IT in the coming year. This trend will accelerate the shift of IT into a more strategic role."

Book most recently on your nightstand: *Kicked, Bitten, and Scratched: Life and Lessons at the World's Premier School for Exotic Animal Trainers*, by Amy Sutherland

That kind of initiative helps explain Keller's current role as chairman of the technology advisory committee for the International Species Information System. ISIS is developing a Web-based zoological information management system to help more than 650 zoos and aquariums worldwide to better manage the animals in their care.

Keller "has a wonderful ability to assess and stay ahead of the curve" with IT systems he has helped to develop and deploy, says his boss, Bruce Hoffberger, deputy executive director of administration and chief financial officer at the National Aquarium.

"The thing that I like the best about my job is that at the end of every day, I feel like I've been able to contribute to innovative things that matter. That's a great feeling," says Keller. "That, and I get to scuba-dive every other month." ■

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_INFRASTRUCTURE LOG

_DAY 56: Our voice and data networks are out of control. Nothing's unified. Nothing's integrated. We have to use different devices for different things. Gil's had enough.

_He's welding every device in the office together with a blowtorch. He calls it "The Unifier."

_DAY 57: I found a better way: Unified Communications and Collaboration solutions from IBM. Now we can integrate our networks to give us real-time access on virtually any device. With the IBM Lotus® Sametime® 7.5 platform we get way more than IM. It combines IP Telephony, Web conferencing and more into a single interface. We're working fast and for less.

_Does this mean our office is no longer a hard-hat zone?

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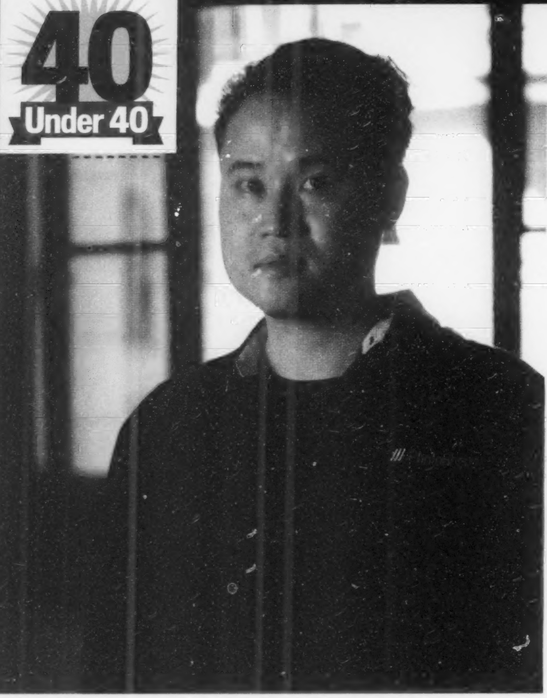

THOMAS S. CHIN

A Wunderkind of App Development

TITLE: Vice president and chief scientist
COMPANY: BitShelter Inc.

30-second biography: A Basic expert by third grade, Chin began coding professionally at 12. By 1990, he had developed numerous real-time multicomputer applications running with no downtime and communicating securely with other devices; his clients included Interbake Foods LLC and other companies.

Upon graduating from Tufts University in 1996, Chin, now 32, co-authored the first concerted distributed computing effort on the Internet.

At BitShelter, Chin designed and developed a secure, scalable, fault-tolerant and geographically redundant object store system able to operate on heterogeneous hardware and a rapid Internet application deployment layer.

Current project: "PhotoShelter, an online archive and marketplace for professional photography."

Who in the technology industry most influenced your career? "My father, who is also a technologist and gave me the opportunity to enter the technology industry at a very early age."

Most-critical technologies for IT this year: "Online and offline collaborative tools and workflow applications. The ability to access data and communicate with others while off-site is a necessity."

Technology can . . . "Only enable new ideas, not create them."

Book most recently on your nightstand: *The Future of Spacetime*, by Stephen William Hawking

COACH WEI

A Pioneer In Internet Applications

TITLE: Chairman and chief technology officer
ORGANIZATION: Nexaweb Technologies Inc.

30-SECOND BIOGRAPHY: Wei, 34, is a pioneer of rich Internet applications, Asynchronous JavaScript and XML (AJAX) and Enterprise Web 2.0. He developed one of the first AJAX applications (AjaxWord) in 1997 and went on to found Nexaweb in 2000. Wei holds five patents, and his writings on Java, service-oriented architecture (SOA), Web 2.0 and entrepreneurship have been featured in more than 50 publications. He is a member of the OpenAjax Alliance steering committee, a lead of the Apache XAP project at The Apache Software Foundation and an advisory board member for several Web 2.0 start-ups.

CURRENT PROJECT: "The Enterprise Web 2.0 software platform that connects service-oriented architecture with rich Internet technologies like AJAX and Java. Also, Enterprise Mashup Server 3 and Apache XAP project, an open-source declarative AJAX framework."

MOST-CRITICAL TECHNOLOGIES FOR IT THIS YEAR: "Enterprise Web 2.0 technologies that bridge Web 2.0 with enterprise computing. Enterprise computing is going through another round of evolution triggered by SOA and Web 2.0. This evolution will dramatically unleash user productivity and enable business agility at levels not seen before. The impact will match the shift from mainframe to PC desktop computing."

NAREN RAMAKRISHNAN

TITLE: Associate professor
ORGANIZATION: Virginia Polytechnic Institute and State University

30-SECOND BIOGRAPHY: Ramakrishnan's research focuses on out-of-turn interaction in Web sites and a data mining algorithm called "storytelling." Ramakrishnan, 35, received a Ph.D. in computer science from Purdue University in 1997, after just two and a half years of study. He is now an associate professor of computer science, director of graduate studies in computer science and a faculty fellow in engineering at Virginia Tech.

THE BEST THING ABOUT TODAY'S TECHNOLOGY: "The empowerment it brings to people so that they can influence trends."

THE WORST THING ABOUT TODAY'S TECHNOLOGY: "How it still sometimes reflects the 'wisdom of crowds.' The minorities are still underserved."

MIN WU

TITLE: Associate professor
ORGANIZATION: University of Maryland, College Park

30-SECOND BIOGRAPHY: Wu's research interests include information security and forensics, and multimedia signal processing and communications. At 32, she has published approximately 80 journal and conference papers and holds five U.S. patents on media security and communications.

CURRENT PROJECT: "Along with my colleagues and research team at University of Maryland, we have developed a series of multimedia forensic technologies. For example, did one company's new product infringe an existing patent by its competitor? How did a terrorist group make a propaganda video aired in the Middle East? Our new forensics technologies showcase the excitement of Sherlock Holmes in the 21st century."

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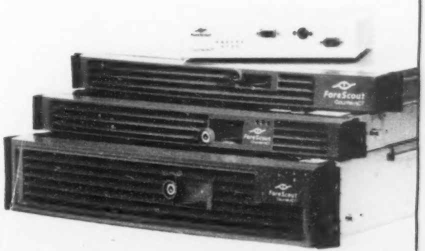

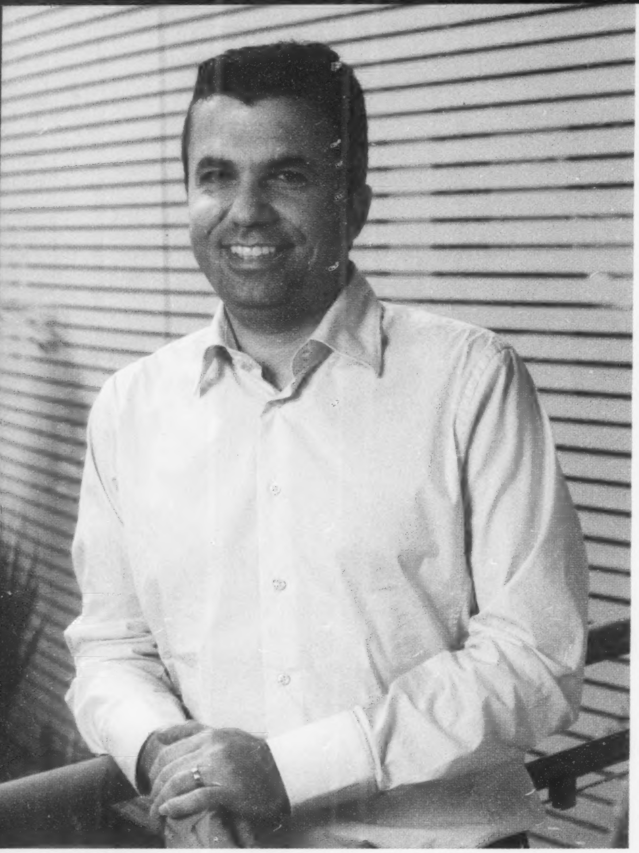

YUVAL BEN-ITZHAK

A Sentry Who Is One Step Ahead

Trained in the Israeli army, he's now developing a portfolio of patents in content security. By Jennifer McAdams

YUVAL Ben-Itzhak, 36, operates on the principle that properly channeled paranoia is an asset, especially when it comes to conceptualizing security tools to keep companies one step ahead of criminals. It's a mind-set this chief technology officer learned during his early days in an elite unit of the Israeli Defense Forces (IDF).

Title: Chief technology officer

Organization: Finjan Inc.

Technology can: "Bridge the knowledge, talent and experience of people from around the world to accelerate the global research and development efforts."

Ben-Itzhak is now charged with developing and marketing security and antispyware products at Finjan Inc., a San Jose-based provider of Web security systems. Among his other tasks, Ben-Itzhak heads up Finjan's Malicious Code Research Center team, which scours the Internet and monitors developments in the IT industry in search of new vulnerabilities that hackers could exploit to launch malicious attacks.

Being constantly on the lookout for dangers that might elude others is a skill IDF officials drilled into Ben-Itzhak, who says he has managed to parlay this thinking into his work on many computer security endeavors.

Furthermore, Ben-Itzhak — who holds the rights to several patents and patented applications — credits his military background for his determination never to consider any technology impossible.

"My early days in the field of military intelligence exposed me to sophisticated systems," he says. "By having these experiences and being mentally trained in this way, I am able to envision things that are far beyond what you hear about in the day-to-day news."

Ben-Itzhak is currently working on a system that will let companies deploy and enforce security policies to scattered mobile users and devices. The offering is in alpha mode and is slated for release next year.

The system "protects employees traveling all over the world who might connect to corporate systems at a local Starbucks or through a local ISP," he says, adding that it's an improvement over current methods of securing remote workers.

Ben-Itzhak says he also spends a great deal of time furthering Finjan's work on real-time code-inspection technology that's designed to block malware based on malicious code behavior and without the use of signatures or patches.

"Security threats are changing all the time, and it is important to understand how those threats are evolving and what's next. To do that, you have to know how the other side is thinking — in other words, what is on the minds of criminals and where will this lead them. If you are simply able to deal with current threats, that's great. But that protection won't stand for long," says Ben-Itzhak.

To ensure that the company's Web filtering services and appliances are not static, Finjan's systems lean heavily on real-time code-inspection technology. Ben-Itzhak says this approach sets his company apart from competitors that rely on lists of contaminated sites to help clients avoid infection.

"If MySpace or Wikipedia were to become infected with malicious code, our products would detect this activity," he says. "This is much different from other products, which may be set never to block Wikipedia."

Ben-Itzhak's tendency to never assume that a site or situation is safe indeed harkens back to his IDF days, observes Finjan President and CEO Asher Polani. "When you are pulled into military missions and challenges, you basically have the weight of an entire country on your shoulders," he says. And that sense of responsibility, he adds, tends to stay with a soldier forever. ■

McAdams *is a freelance writer in Vienna, Va. Contact her at JMTechWriter@aol.com.*

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WENDY CEBULA

Caretaker of The Environment

TITLE: Chief operating officer
ORGANIZATION: VistaPrint Ltd.

30-second biography: Cebula, 36, didn't take the typical technology avenues to get to the COO role by 35. Cebula originally worked in the marketing and analytics department at VistaPrint, but she was able to develop a niche by leveraging data for making key business decisions. Seven years later, the company has over 8 million customers and is processing 18,000 orders per day, all taken and designed online.

Current project: "My team and I have installed more energy-efficient servers and improved utilization in VistaPrint's primary data center in Bermuda, steps that have reduced energy usage by 75%. As a result, the company expects to save nearly half a million dollars over three years and estimates that it will reduce its output of carbon dioxide emissions by several hundred tons in this year alone. We also decided to locate a new data center in Canada, where hydroelectric power — a renewable energy source — keeps power costs stable and has potential to lower VistaPrint's electricity bills by another 70%."

The best thing about today's technology: "Productivity improvements."

The worst thing about today's technology: "Its impact on global energy usage."

PAUL DEBEVEC

Engineer of Reflective Light

TITLE: Associate director, graphics research
ORGANIZATION: University of Southern California Institute for Creative Technologies

30-SECOND BIOGRAPHY: Debevec, 36, led development of devices that capture and simulate how objects and people reflect light. The technology was used to scan in photoreal facial models of actors for digital stunt doubles in films such as *Spider-Man 2*, *King Kong*, *Superman Returns* and *Spider-Man 3*. Debevec also led the design of HDR Shop (*www.hdrshop.com*), a high dynamic range image-editing program; several of its features have been incorporated into Adobe Photoshop CS2 and CS3.

THE BEST THING ABOUT TODAY'S TECHNOLOGY: "It keeps us better connected to one another – you can maintain friendships and collaborations more easily than ever before."

THE WORST THING ABOUT TODAY'S TECHNOLOGY: "It's too expensive for everyone to have. Not just the price, but the effort to maintain and learn the complexities of all the systems."

TECHNOLOGY CAN . . . "Allow people to share their vision with one another and the world."

BOOK MOST RECENTLY ON YOUR NIGHTSTAND: *Gregorin and the Three Wishes*, the collected short stories of computer graphics pioneer Gavin Miller (*www.snakerobots.com*)

WHERE TO FIND HIM: *www.debevec.org*

JAMES YOUNG

TITLE: Director, Information Services Group
ORGANIZATION: Allstate Insurance Co.

30-SECOND BIOGRAPHY: After completing his MBA, Young, 37, joined U.S. Bancorp as a financial analyst, providing financial support to back-office operations, including call center and consumer credit risk operations. After a few years, he moved to Ernst & Young. In 2003, Young joined Allstate, where he is now responsible for delivery of all data warehousing projects in the company's operational data warehouse, including 15 projects with a budget of more than $13 million.

MOST-CRITICAL TECHNOLOGIES FOR IT THIS YEAR: "Data management technologies – everything from storage, integration and search technologies."

TECHNOLOGY CAN . . . "Enable business with competitive advantage."

MATT FLANNERY

TITLE: CEO
ORGANIZATION: Kiva.org

30-SECOND BIOGRAPHY: While working as a programmer at TiVo Inc. in 2004, as a side project Flannery began developing Kiva.org – the first online platform for retail microfinance investments. The technology lets individuals connect with and lend as little as $25 to small businesses in the developing world. As CEO, Flannery, 30, has led Kiva's growth from a pilot project to an established online service with over $3 million loaned.

THE BEST THING ABOUT TODAY'S TECHNOLOGY: "It levels the playing field for the poor."

THE WORST THING ABOUT TODAY'S TECHNOLOGY: "It is being consolidated into a few megacompanies."

BOOK MOST RECENTLY ON YOUR NIGHTSTAND: *Globalization and Its Discontents: Essays on the New Mobility of People and Money*, by Saskia Sassen

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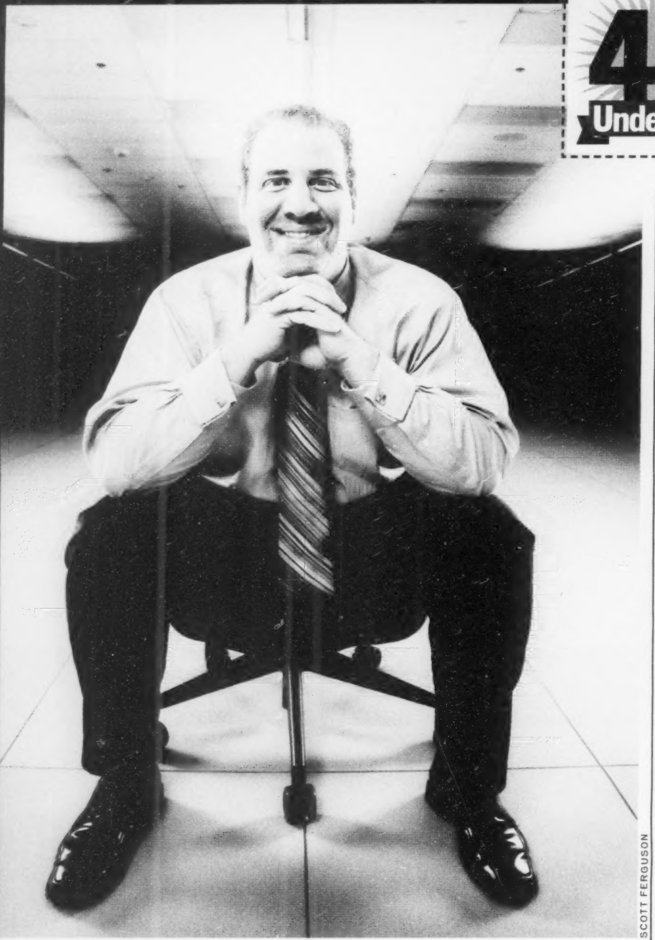
40 Under 40



SCOTT FERGUSON

GRANT BOURZIKAS

Conduit to The Customer

He launched an initiative to secure Scottrade customers' home PCs.

By Todd R. Weiss

WHEN hackers realized that large companies were beefing up their online IT security, they started looking elsewhere for victims, including customers of those large companies who log on from less-than-secure home networks.

Grant Bourzikas, director of information security and business continuity at discount online brokerage Scottrade Inc. in St. Louis, realized it, too. When hackers using phishing schemes captured usernames and passwords and stole money from accounts, his company had to reimburse customers. "We had some losses," Bourzikas acknowledges.

After analyzing the problem, Bourzikas, 30, decided that the best way to address the overall security issue was to help Scottrade's customers make their home computers more secure.

"One of the strongest points here is focusing on our customers," Bourzikas says. To make that happen, he suggested providing free antivirus, antispam and content-filtering services to all of Scottrade's approximately 1.8 million online customers, in partnership with security vendor McAfee Inc.

"The only way to fix it is if the customer has a clean PC and it's not hacked," Bourzikas says. "It gives them that secure online experience."

"It took some selling" with some executive managers, he says. But eventually the skeptics began to see his point — "to fix our system and to fix our customers' systems," Bourzikas says.

Scottrade is among the first in the financial services industry to offer such a breadth and depth of free security services to customers, Bourzikas says. The company plans to start offering the services in August as it helps customers clean up existing security problems on their PCs. Scottrade will also launch an online security to-do list to guide customers through the steps to improving their own IT security.

"If you don't educate, you'll get back in the same situation," Bourzikas says. "It's part of our fiduciary responsibilities."

Bourzikas, who earned a degree in accounting from the University of Missouri at St. Louis, began his career in computer risk management at an accounting firm. As he watched large accounting businesses begin to get more active in tightening their internal security, he saw a broadening need and followed it, transitioning into the IT security controls segment. Before joining Scottrade, Bourzikas created the information security department at Alton, Ill.-based Argosy Gaming Co., which was later acquired by Penn National Gaming Inc.

Along the way, Tim Farmer, a professor at the University of Missouri, has been an important mentor and adviser. "He gave me a good perspective on the business world," Bourzikas says. "He was a good sounding board on things that I wanted to do in my career."

Ian Patterson, CIO at Scottrade, says Bourzikas is always the first one in meetings to ask how policy decisions will affect customers. "We like to think that we're a customer-oriented organization. Grant just fits our culture perfectly from that perspective," Patterson says. "Grant drives it. He is a star. In five years, I'm going to be working for the guy. There's no doubt in my mind." ■

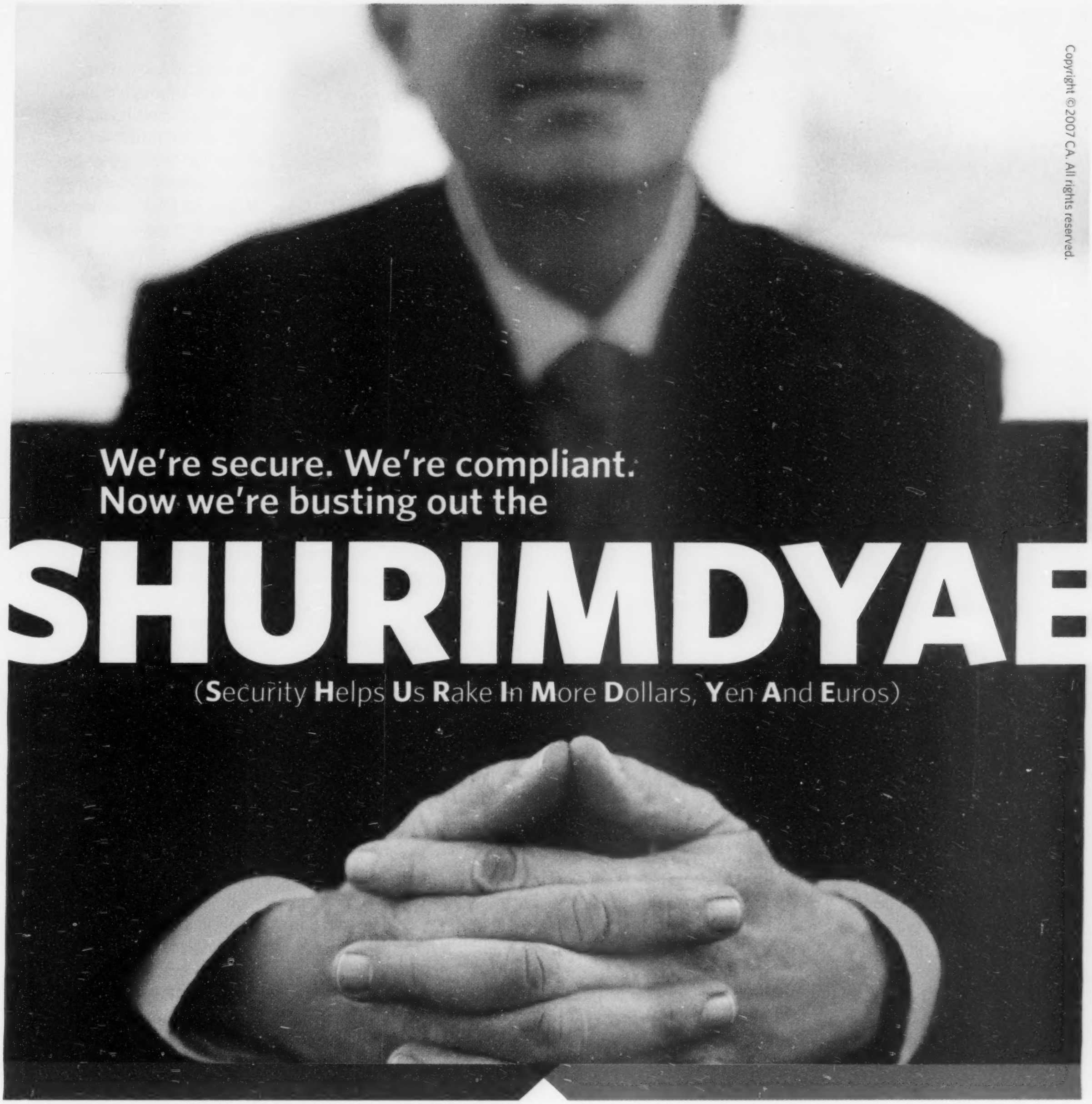
Title: Director of information security and business continuity

Organization: Scottrade Inc.

Most-critical technologies for IT this year: "The technology of the next 12 to 24 months is mobile computing. Powered by the framework of the Internet, organizations will have to figure out how to provide mobile users with the same functionality they get sitting in front of their home computer."

Technology can: "Only be inhibited by one's mind."

Book most recently on your nightstand: *DNS and BIND*, Fifth Edition, by Paul Albitz and Cricket Liu



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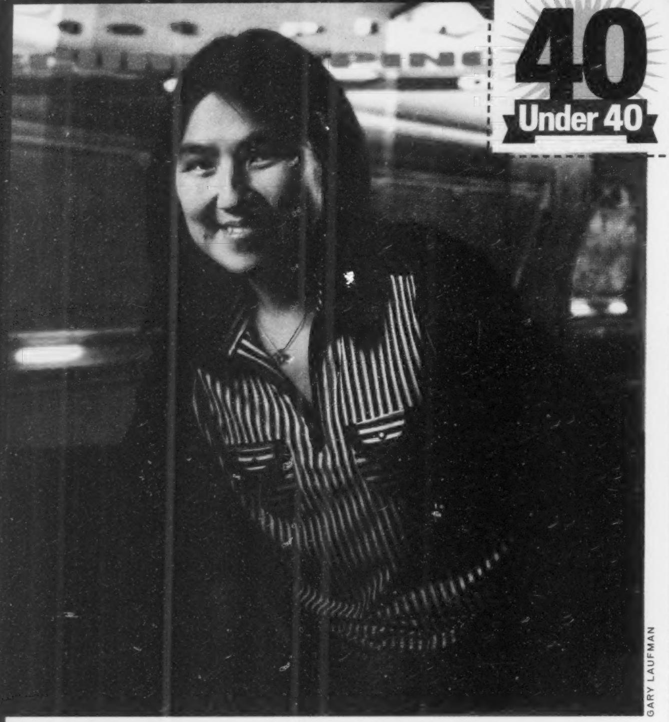


GARY LAUFMAN

SUSIE WEE

Trailblazer in Imaging Technology

TITLE: Director, Mobile & Media Systems Lab, HP Labs
ORGANIZATION: Hewlett-Packard Co.

30-second biography: Wee, 37, is best known for her work with imaging technologies, in particular as co-editor of the JPSEC standard for the security of JPEG-2000 images. She is also editor of the JPSEC amendment on file format security. In addition, she is an associate editor of the IEEE online newsletter "Transactions on Circuits, Systems and Video Technology" and was an associate editor of the IEEE "Transactions on Image Processing" newsletter.

Wee is now director of HP's Mobile & Media Systems Lab and a consulting assistant professor at Stanford University. She has been granted more than 25 patents and has over 25 patents pending.

Current project: "I'm working in five key areas: media security technology, next-generation face-to-face collaboration, next-generation gaming experiences and technologies, mobile video, and HP Mediascapes, which are context-aware multimedia experiences."

Most-critical technologies for IT this year: "Teamwork, passion and collaboration are critical elements of ambitious achievements, and 'personal IT technologies' allow this to happen online. Personal IT technologies are Internet, Web, social media and media technologies that let you communicate, collaborate and build social and professional networks online, but in a personal way."

RAYMOND KARRENBAUER

Rising Star in Corporate IT

TITLE: Group chief of architecture
ORGANIZATION: ING Group NV

30-SECOND BIOGRAPHY: Since joining ING Group in 2001, Karrenbauer, 38, has been promoted four times: from CTO at Aetna, to CTO at ING U.S. Financial Services, to CTO at ING Americas and most recently to group chief of architecture at ING Group. Prior to joining ING, he led IT at Cyberian Outpost; before that, he was a vice president and managing partner at Meta Group.

CURRENT PROJECT: "Projects involving virtual markets, such as the Internet-based Second Life, algorithmic trading/exchange latency and global technology asset reuse."

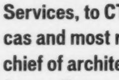
WHO IN THE TECHNOLOGY INDUSTRY MOST INFLUENCED YOUR CAREER? "Geoffrey Moore. His book *Crossing the Chasm* is an eye-opener in the area of internal corporate technology adoption and external influences."

MOST-CRITICAL TECHNOLOGIES FOR IT THIS YEAR: "Trust, Web 2.0 and semantics, respectively. Trust is needed to open up corporate value chains to more external information and providers. Web 2.0 will help eliminate the intermediary entities in value chains. Lastly, semantics will allow the value chains to become more interoperable and streamlined. Globalization has shifted the competitive landscape. Corporations no longer compete with one another – value chains (or supply chains) do!"

MICHAEL FOWLER

Advocate of IT Collaboration

TITLE: IT director, corporate risk systems
ORGANIZATION: Constellation Energy Group Inc.



30-SECOND BIOGRAPHY: Fowler, 39, began his career in 1986 at Baltimore Gas & Electric Co., Constellation Energy's regulated utility in central Maryland. Early in his tenure, Fowler led a transformational call center project to create Windows-based screens using existing mainframe logic and saved the company more than $1 million. The project, says Fowler, "taught me the value of partnering with the business." Since then, he has led Project Horizon, a multimillion-dollar effort to reduce 12 highly customized business applications to two off-the-shelf products. As director of the Collaborative Technologies team, Fowler helped build Constellation Energy's internal portal, myConstellation, which combines self-service applications and real-time content. In late 2006, Fowler joined the utility's corporate risk systems group.

CURRENT PROJECT: "My team is building tools and dashboards to display information on our corporate portal. The project allows us to use multiple applications and technologies to seamlessly deliver information to our top business leaders in near real time."

THE WORST THING ABOUT TODAY'S TECHNOLOGY: "E-mail overload."

TECHNOLOGY CAN . . . "Bring people and cultures together. It's a universal language."

BOOK THAT WAS MOST RECENTLY ON YOUR NIGHTSTAND: *Blink: The Power of Thinking Without Thinking*, by Malcolm Gladwell

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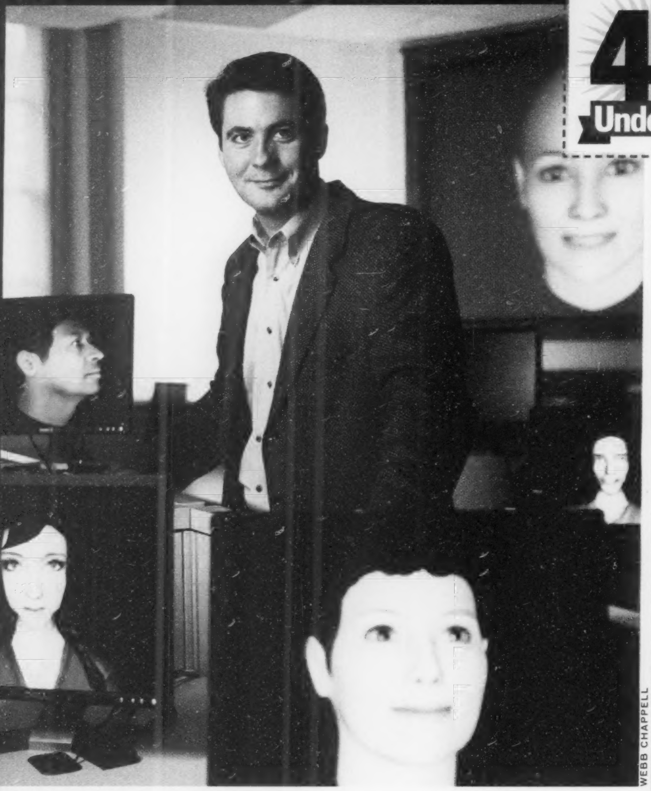

WEBB CHAPPELL

40 Under 40

AARON E. WALSH

Advocate of Virtual Reality

His work on the Media Grid is helping to advance education for those with disabilities. By Jennifer McAdams

AARON E. WALSH'S spirits soar as he describes the radical changes virtual reality applications can make in the lives of individuals with disabilities. Sobering, however, are the first-hand accounts of VR addiction that Walsh, 37, has heard in his years as a Boston College faculty member and director of the Grid Institute — an organization that promotes the use of a public utility grid to develop and deliver high-end virtual reality and 3-D simulation programs. The U.S. Marine Corps' Toys for Tots Foundation, for example, uses Grid Institute technology to deliver games, music and videos to children through its Web site.

VR is a distinctly human experience, according to Walsh, who says he is regularly exhilarated and disheartened by the technology that he has worked so hard to advance. For instance, an inspired Walsh watched last year as a student who had enrolled in an immersive education course transcended brain injuries sustained in a firearms incident. Immersive education combines interactive 3-D graphics, commercial game and simulation technology, virtual reality, voice chat, Web cameras and rich digital media with online courses and classrooms.

In a VR world, physical limitations are irrelevant, says Walsh. Yet, a world without physical limitations isn't real, and some people who rely heavily on VR find it hard to distinguish between the virtual and real worlds. Each semester, students approach Walsh and say they can't cope with the prospect of working in virtual environments, fearing that they will lose control psychologically. Walsh uses the term "virtual schizophrenia" to describe the stress some users experience when they struggle to move between VR and the real world.

"I've seen VR addiction ruin the relationships and entire lives of individuals. This trend will only get worse as we see VR move beyond just cartoon images to realistic, Hollywood-movie-like interactions," says Walsh. Individuals likely to show signs of VR addictions tend to be those working on gaming applications, which can require a developer to get into "character." Sometimes it can be difficult to step out of that VR character and back into real life, says Walsh.

"However, we are quickly coming to a point where VR is becoming mainstreamed, and the availability of huge amounts of digital media will put our culture at a crossroads. I knew all of this before I got heavily involved with the technology," he says.

Title: Director; faculty member

Organization: Grid Institute (director); Boston College (faculty).

The best thing about today's technology: "Its ability to connect, heal and protect people.

Technology can: "Drive me crazy."

Walsh also realized early on that VR would forge ahead with or without him. Thus, he decided that with his eyes wide open, he'd plunge in — especially given the technology's potential for good. "There is no question that even with all of this doom and gloom, VR's benefits far outweigh its risks," he says.

The decision to march into a crowded field and lead with his conscience is consistent with Walsh's character, attests Boston College Dean Father James Woods. "He realizes that if he doesn't do it, someone else will. But this doesn't bother Aaron. He invites others to share in his dream," Woods says.

Walsh's dream now is to build up Media Grid, a VR computational platform established by Boston College in 2003. Specifically, Walsh's Grid Institute serves as a standards organization and the commercial interface that's needed to spur the use of Media Grid, a patchwork of service providers that run rendering farms, computational clusters and high-performance computer systems.

"I want to push VR forward," he says, "but I want to put some conscience behind it." ■

McAdams *is a freelance writer in Vienna, Va. Contact her at JMTechWriter@aol.com.*

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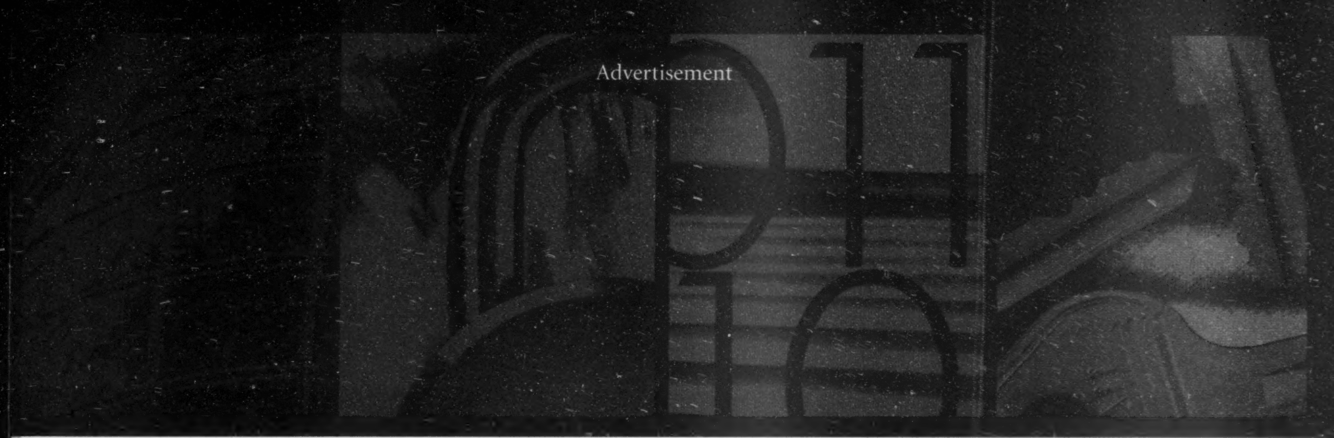

Enterprise Data Protection:
Securing Critical Data Assets

The biggest threat to information-driven companies is not hackers, terrorists, or viruses. Look closer. It's your trusted supply chain partner, the engineers working for your outsourcing company, and even your colleague in the next cubicle. Internal workers and those within your business ecosystem are far more likely to hurt your business than any external threat because they have clear access to your most critical corporate asset: data.

Business data is everywhere – from laptops to network servers and from email to USB devices. It extends throughout your formal network and into the global market in which you compete. The breadth and scope of this data makes protecting it that much more difficult.

As a result, traditional point solutions that protect certain devices or data against specific risks are insufficient to provide cross-enterprise data security. To protect the data, mitigate risk, and meet compliance requirements, you need to implement an enterprise data protection strategy.

Protection beyond the perimeter

Everyone has heard the stories of costly data security breaches – rogue insiders, opportunistic thieves, and those trading in competitive intelligence. CEOs and other business executives are beginning to pay closer attention to these threats. Potential financial loss combined with new regulations has educated business leaders about the value of corporate data and forced them to take steps to protect it. Even so, many execs still lack understanding about which data is susceptible and why.

"It's time to begin looking at the bigger picture of enterprise data protection," advises Tom Bowers, managing director of Security Constructs LLC, who is also a technical editor for Information Security magazine and SearchSecurity.com. "You need to broaden your mind about the potential risks."

"Data is the new currency for both corporations and individuals," agrees Phillip Dunkelberger, president and CEO of PGP Corporation. "Defending the data means protecting it at its source, not just out in the network or at the perimeter. Protecting the perimeter won't stop a rogue employee from sticking a USB device into a computer and then walking off with your important data."

> "When encryption is policy-based and automated, people don't have to click buttons to turn security on."
>
> *Phillip Dunkelberger, president and CEO, PGP Corporation*

Follow the data

Data can be breached when it is in use, at rest, or in motion. Companies must look for security solutions that provide protection for all these data types, across the enterprise. "Until now, the entire security industry was birthed on stove-piped, stand-alone solutions," says Bowers. "Now it's time to find solutions that start at the data point and follow the data wherever it goes."

Enterprise data protection solutions offer various approaches to achieving comprehensive security. Unlike costly older security approaches that compromised system performance or worker productivity – often creating new barriers to data access – today's data protection technologies offer automation and ease of use. Policy-based security solutions no longer apply only to specific data types or to certain people using the data. Instead, they specify security protections across the business ecosystem, making data protection pervasive and user-friendly.

Likewise, today's encryption technologies enable business processes that streamline use and minimize administration, making them far more efficient – and effective. "When encryption is policy-based and automated, people don't have to click buttons to turn security on," says Dunkelberger. "Continuous protection is more successful protection. The vision of enterprise data protection is that data is secured wherever it goes, because protection and policy enforcement are built in from the ground up."

Get the big picture

The good news is that security vendors are beginning to dynamically integrate their products to work with other security solutions. "I'm encouraged by what I'm seeing," Bowers says. "Although it may take 18 months before complete solutions are realized, these ideas aren't vaporware any more."

Security professionals can help by proactively considering their data protection policy. "Look at data as a core business currency," says Dunkelberger of PGP Corporation. "You need to know which data assets are in use, where they are stored, and who has access to them. Only then can you devise overall enterprise data protection strategies. Although there is no single security technology to address every concern, companies that have considered these questions and created appropriate policies are more prepared to stop internal and external threats to their key data assets." ■

PGP Corporation: A Comprehensive Approach to Securing Data

Corporate data lives everywhere, traveling from your internal IT infrastructure over the Internet to business partners or customers and out the door every day on laptops and USB flash drives. How can you protect this vital asset?

PGP Corporation offers enterprise data protection solutions that protect the data itself, building data security into process rather than constraining use and access. PGP Corporation's encryption and key management solutions form the foundation of a complete enterprise data protection strategy. Automated key and policy management is crucial to making an enterprise data protection approach work – protecting the data, detecting data at risk, controlling access, and managing the data lifecycle.

Standards-based solutions from PGP Corporation provide automated data protection that begins when data is created and extends through its use, sharing, and archival. "The PGP Corporation approach reduces IT operational costs because it works with the devices and capabilities already inherent in networks today," explains Phillip Dunkelberger, president and CEO of PGP Corporation. "Our solutions can be implemented without re-architecting your information infrastructure."

The company's solutions are simple and cost-effective, reducing the time and effort needed for deployment. One PGP Corporation customer, for example, rolled out data protection on 35,000 laptops in less than one month. The solution was fully managed by the organization's IT staff without any additional personnel.

PGP Corporation solutions are used by 95% of Fortune® 100 companies, 75% of global organizations, and 87% of the German DAX-listed companies. "We have more than 10 years as the proven leader in mitigating risk by protecting data at the source," says Dunkelberger. "Global brands like Airbus, HSBC, and Sony Computer Entertainment all protect their data with our solutions."

Most important, companies can begin deploying enterprise data protection solutions incrementally. "You can begin by protecting your laptops or mainframe data, or you can concentrate on securing email data," says Dunkelberger. "You don't have to do it all at once. The PGP Corporation approach lets any company get started today." ■

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[1] TheInfoPro, Inc. Information Security Survey, Wave 6, January 2006.
[2] Fortune, April 17, 2006
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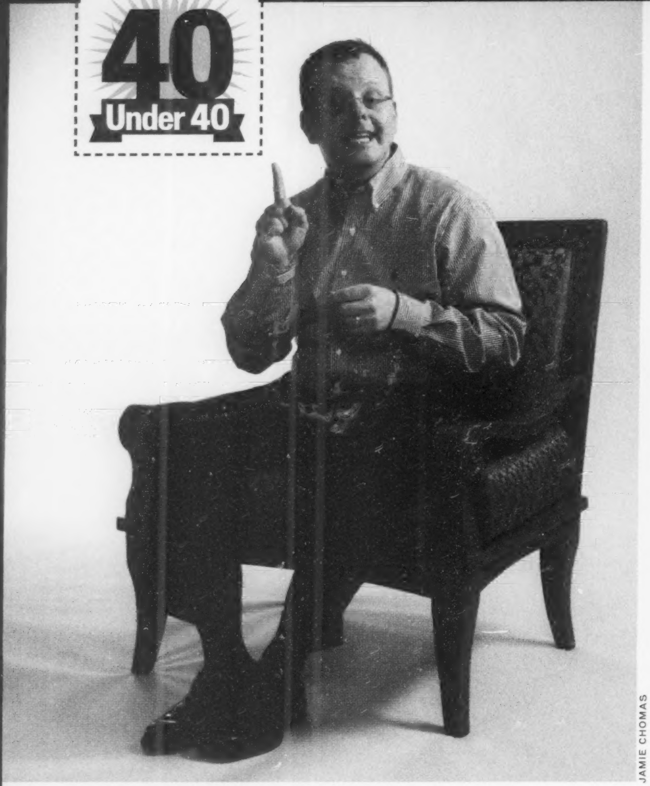


JAMIE CHOMAS

TONY BISHOP

Architect of Infrastructure Change

TITLE: Senior vice president and chief architect
ORGANIZATION: Wachovia Corporate Investment Bank

30-second biography: Bishop, 37, began his career while still in college, as a systems engineer installing PCs and Unix systems. At Wachovia, he leads a team of 70 that builds software frameworks to enable a real-time infrastructure. The team provides engineering and architecture oversight for a group of 1,400 developers and application support people.

Current project: "We are two years into a four-year plan to implement a service-oriented architecture. Our platform now operates over 10,000 nodes and handles hundreds of thousands of transactions daily. Performance has improved fiftyfold, we have seen a 300% return on investment, and it has enabled over $10 million in revenue."

What technology most influences your life right now? "Distributed computing. It has enabled us to deliver innovation and put the power at the fingertips of our power users."

The best thing about today's technology: "Maturity and evolution toward open systems. Client/server evolved into object-oriented Web systems, which evolved into distributed SOA Web services."

The worst thing about today's technology: "Its use by terror organizations."

Technology can . . . "Make the world a better place."

ARI JUELS

Early Explorer In Cryptography

TITLE: Chief scientist and director
ORGANIZATION: RSA Laboratories

30-SECOND BIOGRAPHY: While it's common to think of cryptography solely in terms of encryption and operations like digital signatures, Juels, 37, has taken a particular interest in the boundaries of the field. He developed cryptographic techniques to protect against denial-of-service attacks, and his research on "fuzzy cryptography" has evolved into features used in RSA products. One, for example, helps to secure the answers to questions used in password recovery (such as, "What is your mother's maiden name?").

CURRENT PROJECT: "I'm working on a piece of cryptographic trickery that I call a 'proof of retrievability.' POR enables a server to prove to a user that it has a complete, intact copy of the user's files."

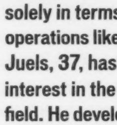
THE TECHNOLOGY YOU CAN'T LIVE WITHOUT: "I incline toward the long view. The technology whose loss I'd feel most acutely is the printing press – still the most potent, ramifying force for the imagination."

MOST-CRITICAL TECHNOLOGIES FOR IT THIS YEAR: "I foresee one truly pivotal change this year: The consumer will usurp the place of the enterprise in the vanguard of IT technology. Video games, in particular, are seeing a transformation from play spaces into collaborative environments and from simulators of wealth into real stores of wealth."

TECHNOLOGY CAN . . . "Only serve as a wire to the electricity of thought."

WALLACE DALRYMPLE

TITLE: Manager and architect for network, telecommunications and security
ORGANIZATION: General Motors Corp.

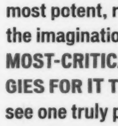


30-SECOND BIOGRAPHY: Having worked his way through college as an intern network administrator supporting a Novell network, Dalrymple, 37, has since earned a master's degree in business IT. At GM, he is responsible for identifying, evaluating and developing architectural recommendations on technologies in networking, telecommunications and security.

MOST-CRITICAL TECHNOLOGIES FOR IT THIS YEAR: "Technologies that enable collaboration and drive new application architectures, such as Web services, SOA and Web 2.0, will be a part of many organizations' portfolios in the coming year."

TIMOTHY CAMPOS

TITLE: CIO
ORGANIZATION: KLA-Tencor Corp.



30-SECOND BIOGRAPHY: The youngest CIO in the Fortune 500, Campos, 34, started his career 15 years ago as a software engineer at Sybase Inc. He's had software engineering roles at Sybase and Silicon Graphics Inc., and engineering management positions at SGI and Portera Systems. Campos has been in IT management for more than four years at KLA-Tencor, where he is responsible for IT strategy and delivery for all of the company's information services.

CURRENT PROJECT: "We are in the midst of a business transformation program that will incorporate a variety of technologies, including IP-based call center system and BlackBerry devices connected by SAP NetWeaver portal technology to SAP R/3."

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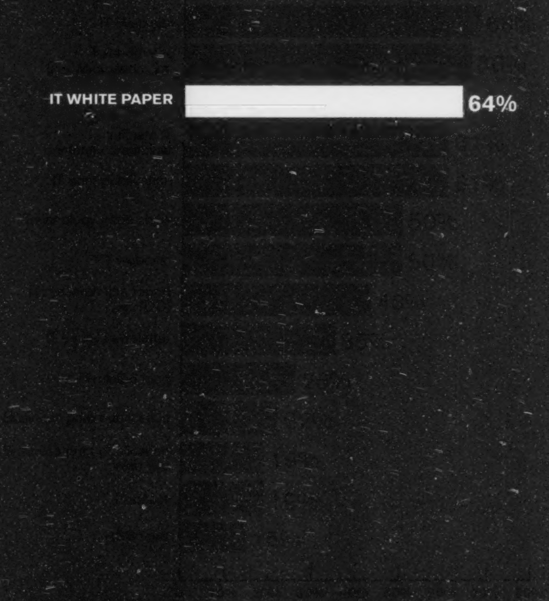

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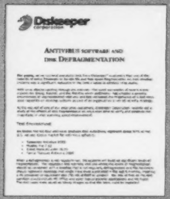

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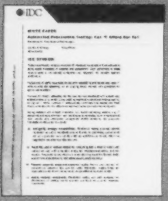

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40 Under 40

DAN WALLACH

Security Watchdog For the Industry

This research guru helped design the security architecture used for Java, JavaScript and C#.

By Stacy Collett

DAN WALLACH doesn't shy away from a good fight — especially when it comes to exposing security flaws in important technologies that affect the public. When most academic researchers steer away from controversy, Wallach steps up.

As a security researcher, Wallach, 35, has unearthed problems in proposed digital music security initiatives and electronic voting systems, leading to a few run-ins with corporate lawyers.

"I'm not a hacker," insists Wallach, a tenured associate professor at Rice University. "I'm shining the bright light of scientific inquiry" on very public IT issues.

Wallach began his career as a graduate student at Princeton University, where he discovered security flaws in Sun Microsystems Inc.'s Java technology. As an intern at Netscape for two summers, he helped design the basic security architecture now used for Java, JavaScript and C# across the Web.

Before moving to Rice, he published papers on a variety of research topics. In one paper, a critical analysis of the Secure Digital Music Initiative, he found that all of the proposed SDMI systems were easily broken. In another, Wallach and his team analyzed Diebold's electronic voting system and found that it had similarly glaring security flaws. The SDMI consortium and Diebold both threatened to sue but eventually backed down. Wallach says he had the scientific evidence to back up his claims.

"Dan has a lot of guts and is willing to do things that matter to people," says Ed Felten, Wallach's adviser at Princeton. "That sometimes gets lawyers and powerful people involved. But he's willing to navigate those challenges to get the work done."

Currently on sabbatical from Rice, Wallach is focusing on voting security as associate director of ACCURATE, a $7.5 million research center. Explaining why he's involved in that effort, he says, "It's hard for me to think of anything more important [to work on] than our democracy." ■

Collett *is a* Computerworld *contributing writer. Contact her at stcollett@aol.com.*

Title: Associate professor, Department of Computer Science

Organization: Rice University

The best thing about today's technology: "Even the cheapest computers are so insanely fast that programmers can focus on features (or security or robustness or a variety of things) rather than on shoehorning something big into a small box."

The worst thing about today's technology: "Yesterday's legacy technologies have an unfortunate ability to stick around and cause us grief today. The most notable example is probably the millions of zombie nodes on the Internet – computers running unpatched or mismanaged versions of Microsoft Windows."

Technology can . . . "Free us or bind us, track us or lead us."

Book most recently on your nightstand: *Election Administration in the United States*, by Joseph P. Harris

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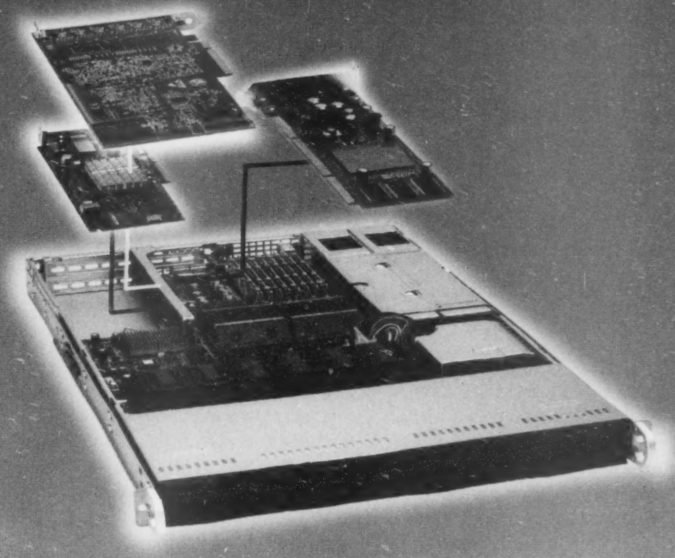

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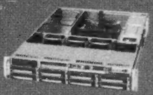

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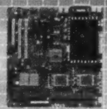

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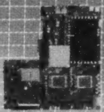

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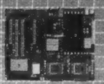

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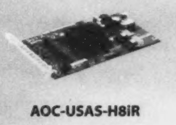

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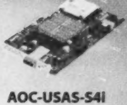

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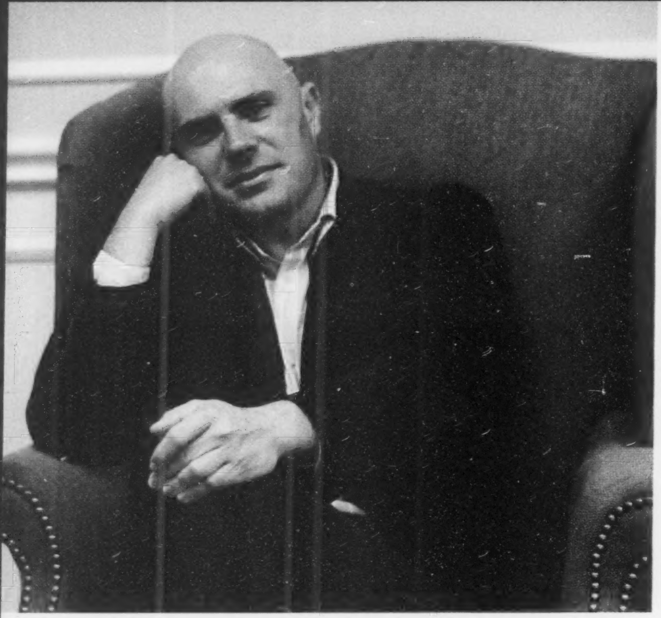

PABLO G. MOLINA

A Consensus-Builder And a Diplomat

As CIO, he's working to automate classroom recordings in high-quality, digital format.

By Robert L. Mitchell

AT GEORGETOWN University Law Center, CIO Pablo G. Molina's recipe for innovation includes a pinch of consensus-building plus a dash of ingenuity to get projects finished without breaking the budget.

"Higher education is somewhat conservative in adopting technology," says Dimo Michailov, information security and privacy officer at the Washington school. "[Molina] has been able to push new technologies and innovations and has negotiated that landscape very successfully."

One such innovation: implementing a digital audio capture system to replace the aging tape decks used in 40 classrooms to record lectures and events. The new system converts audio streams to digital format, stores them on an Apple server and makes the recordings available to qualified students by way of a Web application on the campus network. Fiber links and high-speed switches connect classrooms to the AV control room.

The custom-designed system can scale to support simultaneous video streams from all 40 classrooms — and came in at a fraction of the "staggering" cost of a turnkey system, with better scalability, says Molina, 38. To save money, his team substituted Macintosh Minis for multiplexers, built its own authentication infrastructure around Active Directory and developed a custom Web application in ColdFusion.

"He and one of our other team members were able to figure out how to use Mac Minis to do the actual analog-to-digital transcoding," saving tens of thousands of dollars in equipment costs, says Michailov.

"We created a plan for using technology from scratch. We built our own applications," says Molina, who joined the university in 2000. "We used lots of ingenuity and creative people who built their own tools."

The project required the IT group to build trust with vendors as well as faculty members, some of whom were wary of the initiative. "It required significant policy work at the faculty level," says Molina. But it also forced the university to codify its unwritten policy on recording class lectures.

"He builds consensus almost without you noticing," says Juan Escalada, director of systems, adding that Molina regularly visits every person on staff to ask for their opinions on current issues. "Every time he's submitted a request for equipment, regardless of price, it's gone through," Escalada adds.

Title: Campus CIO

Organization: Georgetown University Law Center

The best thing about today's technology: "Finally, most new technologies work, and work well, most of the time."

The worst thing about today's technology: "Technology must become more intuitive, more functional, easier to use, less burdensome to maintain and more reliable."

Technology can: "Educate the world."

Book most recently on your nightstand: *Globalization, Poverty and Inequality*, by Raphael Kaplinsky

In an earlier project, Molina got the idea of developing a Facebook-type application for the university after a student asked how to find other students from Missouri who might want to watch college basketball games together. "Pablo was the inspiration behind the project," says Michailov, who helped complete the project over a summer. In fact, Molina says he came up with the idea and the name "Facebook" before the commercial Facebook service launched in 2004. "Had I known, we would have registered the domain name, and I would be a millionaire," he says.

Now Molina wants to extend the audio recording effort to make a collection of classes, including audio, presentations and diagrams, available online — and selectively publish some content on the Web. His other goal is to enhance distance learning using Cisco Systems Inc.'s TelePresence room-size videoconferencing system. "How do we make the world flat so that we can reduce distances and promote collaboration?" he asks.

Currently he's working with Cisco to install a TelePresence system that will allow professors in the university's London and Washington campuses to teach classes together.

Molina hopes to get a deal on the expensive equipment by serving as a test site that can demonstrate that the technology is useful. But why go to all of that effort for an unproven technology? "Those who are willing to take risks get the early-adopter rewards," he says. ■

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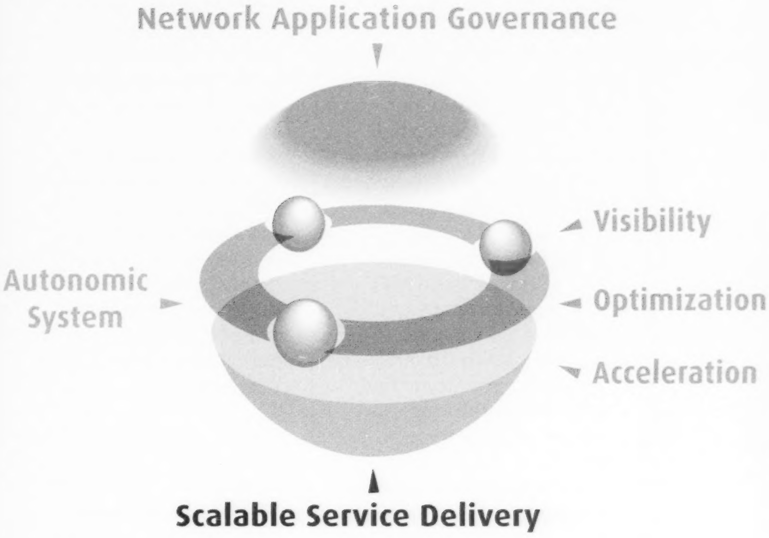
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40 Under 40

JIAZHI WU

Programming's Crack Competitor

This coding champ won 39 out of 45 TopCoder programming matches in two years.

By Eric Lai

WHAT KIND of trophies do they give to programming champions? Jiazhi Wu would know. As an undergrad at Zhejiang University in China, Wu won a record 39 out of 45 programming contests held by TopCoder Inc., a Glastonbury, Conn.-based software development and recruiting firm. Winning those global contests — which generate actual software that TopCoder turns around and sells to its corporate customers — also won Wu a cool $155,000.

"Jiazhi writes code very fast. In most cases, his code doesn't need much debugging," says Chao Yang, a former classmate of Wu's and a fellow competitive coder. "Based on my observations, I cannot see any weaknesses in him as a programmer."

"I'm not good at sports at all, so programming was the most competitive aspect of my life," says Wu, who counts Java, C++ and C# as his favorite languages.

Champion coders tend to burn out early or move on to "real jobs." That's the case with the 26-year-old, who says he has retired from competitive programming and now focuses on his role as vice president of technology for the Chinese subsidiary of TopCoder.

His mission: to serve as chief architect for software components produced in China, as well as attract more burgeoning talent from China's deep technical well.

"There are a lot of talented Chinese programmers around, but they need a platform to present themselves," he says. "TopCoder provides that platform."

Already, 10% of the 112,000 programmers that are TopCoder members are from China. They tend to duel with developers from Eastern Europe for the top prizes at contests such as last month's TopCoder Open in Las Vegas. That competition offered prizes worth $260,000, along with exposure to top IT recruiters.

Wu is based in Beijing, where China's equivalents of Harvard and MIT — Beijing University and Tsinghua University — are located. But Wu still crisscrosses the country to find the cream of the crop. On the day of this interview, Wu was in the southern port city of Zhuhai, where more than 300 university students were expected to come listen to him lecture.

Wu says TopCoder's contests mesh well with the mentality of young Chinese developers, "who appreciate the spirit of competition." And TopCoder's business model — winners get a percentage of the revenue from any sales of the software by TopCoder, in addition to prizes and job contacts — helps "shorten the distance between clients and programmers" and sidestep language or cultural barriers.

And what about those programming trophies? Do they depict a man hunched over a keyboard, coding? Wu laughs. "That would be too complicated to manufacture," he says. "Most of my trophies have very abstract designs." ■

Title: Vice president of technology, China

Organization: TopCoder Inc.

Most critical technologies for IT this year: "A mature AJAX programming model or product. The technology itself isn't new and has been widely used, but the programming paradigm can make it a nightmare for developers to trace problems. There are a few framework-level products available, but they are far from mature. I think the breakthrough should happen in the methodology rather than with a particular technology. I believe component-based development could very well be on the right path, blended with an architecture-level approach."

Technology can ... "Magnify human capability."

BEN Y. ZHAO

TITLE: Assistant professor, computer science
ORGANIZATION: University of California, Santa Barbara

30-SECOND BIOGRAPHY: Zhao, 31, has engaged in research that spans the areas of networking, distributed systems, security, and simulation and modeling. His Ph.D. thesis created a new research field now known as structured peer-to-peer overlay networks.

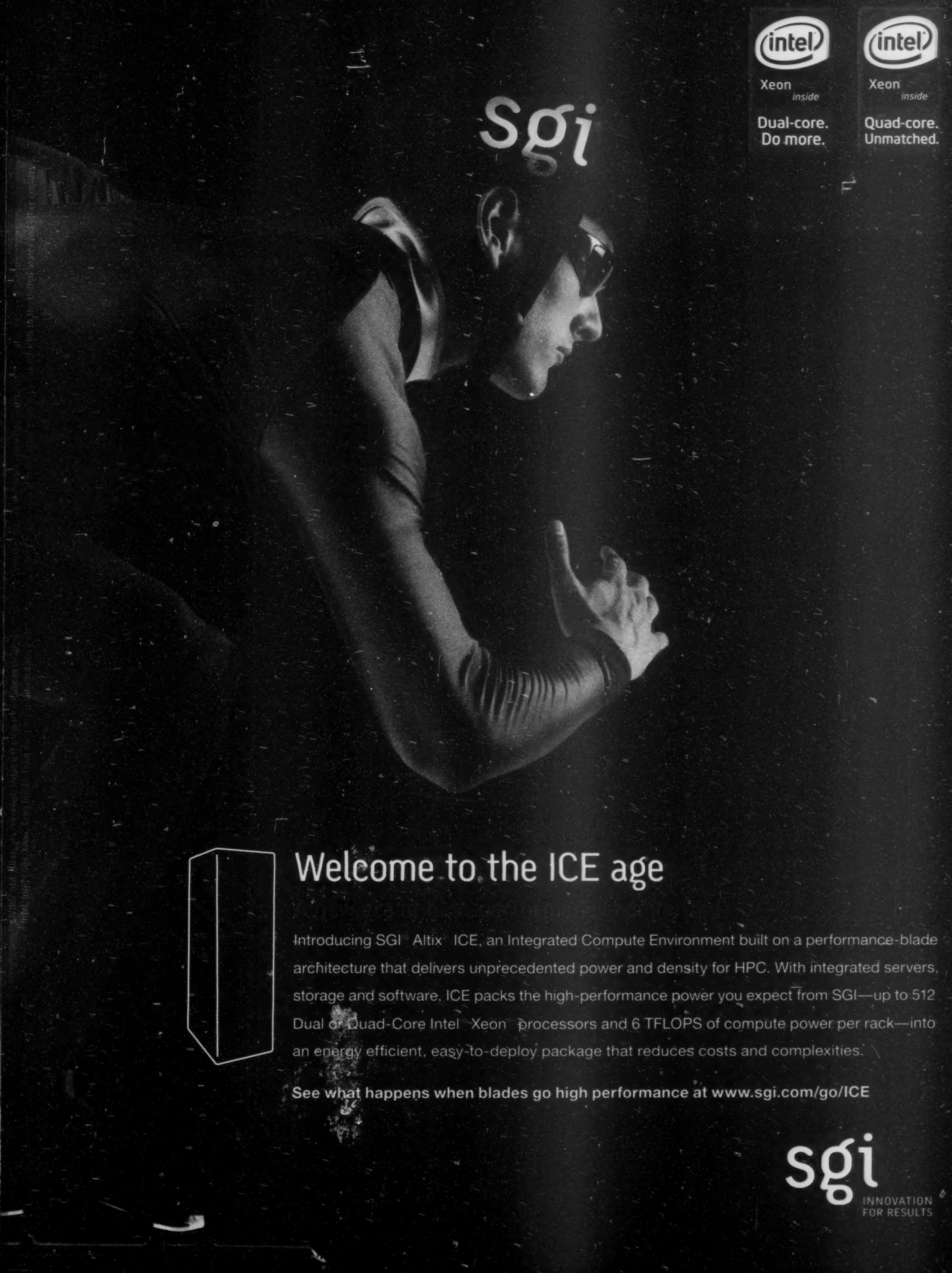
WHAT SETS YOU APART? "I believe in the power of technology research to change our lives. I am rarely satisfied with current technology and believe that every problem, no matter how large or fundamental, can always be solved with the right piece of creative research and technology."

CAREY NACHENBERG

TITLE: Symantec fellow
ORGANIZATION: Symantec Corp.

30-SECOND BIOGRAPHY: As a Symantec intern in the 1990s, Nachenberg, now 35, developed code for products such as Norton Commander, analyzed viruses and wrote virus fingerprints. He then went on to design the company's antivirus detection technology for Norton AntiVirus. After completing his master's thesis on a technique for detecting self-mutating computer viruses in 1995, Nachenberg went to work at Symantec full time. He holds 18 software patents.

TECHNOLOGY CAN . . . "Transform the way humanity lives, learns and interacts – unfortunately, empowering both well-meaning and malicious people equally."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THERESA COLLINS ENEBO

An IT Leader In the Making

From receptionist to executive, she's now developing a VoIP-based, live-agent-assisted kiosk. By Mary K. Pratt

THERESA COLLINS Enebo plans to be a CIO. That would be quite an achievement for anyone, but it would be a particularly impressive feat for Enebo, who came into the IT profession by chance.

Enebo, 35, is vice president of technology, North America and core systems, at TeleTech Holdings Inc., a global business process outsourcing company in Denver. Enebo says she's responsible for "pretty much everything but the network" and directly oversees 200 people and indirectly oversees about 500.

Her executive position is a long way from her first professional job as a receptionist at ADC Telecommunications Inc. in Minneapolis. She took the job just out of high school; she says she didn't go straight to college because she didn't want to start her life in debt.

Enebo did, however, earn an associate's degree in advertising and graphic design from Brown College through ADC's tuition reimbursement program. Although she planned a career in that field, Enebo showed an aptitude for working with computers. ADC managers noticed and offered her a help desk job, which she accepted.

Other promotions followed, and Enebo eventually became director for application development and non-ERP systems at ADC.

Enebo says she developed her expertise through on-the-job experience as well as from professional courses and books.

But she says it's her unusual path, along with her ability to think creatively, that has helped her build such a successful career in IT and aim for the top.

"Looking back, am I amazed? Yeah. But I love what I do," Enebo says. "The next step for me is a CIO position. I do see that happening, and soon."

Says Mike Ringman, vice president of global technology infrastructure, "Her diverse background lends itself to a lot of different areas. She is a very tenacious leader, and she's always on top of all of the projects." ■

Pratt *is a* Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

Vice president of technology, North America and core systems

TeleTech Holdings Inc.

Most-critical technologies for IT this year:

"Software as a service and hardware virtualization. As IT departments continue to focus on core competencies, I see more movement to SaaS for noncore functions. Additionally, corporations will be required to free budget for more innovative technology advancements by managing the maintenance costs of hardware."

"Enable great business processes to be greater. But it cannot fix bad business processes."

BRYAN M. SASTOKAS

Keeper of Identity Security

TITLE: Director of IS, strategy and architecture

ORGANIZATION: Universal Service Administrative Co.

30-SECOND BIOGRAPHY:

"My career has gone from newsroom to boardroom," says Sastokas, 38, who started out in the IT field supporting both the newsroom and distribution systems for a newspaper. In his current job, Sastokas helped grow the USAC IT organization, established the company's enterprise architecture and created committees to set up standardization, application development process review and IT governance procedures.

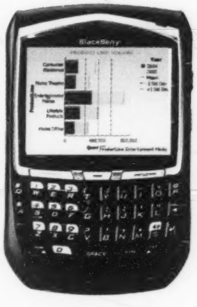
CURRENT PROJECT: "The creation of an identity and access management architecture. USAC's fundamental business is the management of the Universal Service Fund. My goal is to have one authoritative repository for contributors' and applicants' access information that will be used in managing a secure access-control infrastructure."

MOST-CRITICAL TECHNOLOGIES FOR IT THIS YEAR: "Identity management, since I firmly believe that corporations need to treat customer and employee identities as a key component to their overall IT and business strategy."

TECHNOLOGY CAN . . . "Offer a company the means to survive."

keeping my finger on the pulse

BY ROB ASHE



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Like any other business executive, I stake my job on my ability to make good decisions. The quality of these decisions is directly related to my ability to access real-time, accurate and complete information. How is our business doing? Why is our business performing the way it is? What do we want our business to be as we move forward?

Of course, that information has to be presented in a highly intuitive format. I have to be able to get it virtually anytime and anyplace, and delivered to the device of my choosing.

Just a year ago, that device was my laptop, where I ran my own dashboard and my own performance scorecards. However, look around today and you'll see that for many business persons, the laptop is going the way of the leather briefcase.

Now I carry my BlackBerry instead, but I haven't missed a beat when it comes to getting the mission-critical information I need. That's because here at Cognos, we committed ourselves to making the benefits of business intelligence truly pervasive, driving performance management decision-making way beyond traditional environments. After all, the nature of business has exploded beyond traditional boundaries and into a global environment of 24/7 decision making, whether you are on a train in Bonn, a ferry in Hong Kong, or a hotel room in Chicago.

Sometimes even I'm awed by the incredibly rich client capabilities I have at my fingertips. That's courtesy of a solution we recently announced called Cognos 8 BI, which brings the decision-making power of the Cognos 8 platform to my BlackBerry. For example, all the sales reports I used to access on my laptop are now available on my handheld. The reports are written once and automatically formatted for my BlackBerry. I drill in on my key metrics charts, which are highly interactive. I can also drill down according to geographic criteria for global insight. I can access key company performance information anywhere I can use my BlackBerry, which is to say just about anywhere, at any time.

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Rob Ashe is CEO and president of Cognos.

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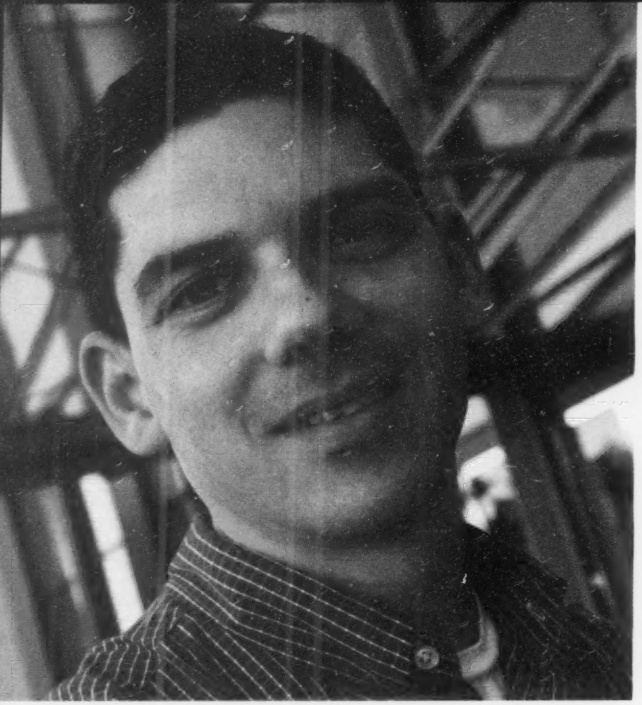

ANDI GUTMANS

Early Backer of PHP Language

TITLE: **Co-founder and co-chief technology officer**
ORGANIZATION: **Zend Technologies Ltd.**

30-second biography: Gutmans, 31, has been a lead contributor to PHP: Hypertext Preprocessor since 1997, when he and Zeev Suraski developed the foundation for PHP 3. That version was a turning point for the language, which today powers 20 million Web sites. In 1999, Gutmans co-founded Zend Technologies, a company that provides business-critical PHP applications.

Current project: "I am working on a variety of projects to further enhance the experience of PHP developers. These include Zend Framework, which delivers a high-quality open-source framework for developing modern Web applications and Web services. An example of innovative IT use of Zend Framework is IBM's QEDWiki project, an application that allows the easy creation of enterprise mashups."

The best thing about today's technology: "It's readily available. The cost of acquisition has gone down significantly, and getting up and running usually takes little time and energy."

The worst thing about today's technology: "There is too much choice. It is often very hard to decide what solutions to adopt, and the market is in constant flux. Do we really need hundreds of Linux distributions?"

Book most recently on your nightstand: *The Soul of a New Machine*, by Tracy Kidder

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BEN CHELF

Computer Bug Sleuth

TITLE: **Chief technology officer**
ORGANIZATION: **Coverity Inc.**

30-SECOND BIOGRAPHY: Chelf, 29, helped develop static source code analysis technology that finds defects in software with low noise and high accuracy. He's also been involved in open-source development, heading an effort to provide free analysis of 35 million lines of open-source code daily. More than 250 open-source projects have participated, and over 6,000 bugs were fixed in the first year.

CURRENT PROJECT: "Working with my research team, I recently completed work on technology that can create a complete map of a software project – a working model that contains the complete representation of how an application flows. With this map, developers will be able to apply an unlimited number of automated checks to find bugs and software security holes that would normally only occur in extremely unusual situations."

WHAT TECHNOLOGY MOST INFLUENCES YOUR LIFE RIGHT NOW? "Software in all of its guises. Commercial software companies are working on projects that have tens of millions of lines of code. Applications are getting bigger and more complex, and the costs of bugs and security holes are going straight up."

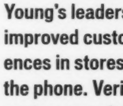
BOOK MOST RECENTLY ON YOUR NIGHTSTAND: *Hard-Boiled Wonderland and the End of the World*, by Haruki Murakami

FAVORITE WEB SITE: *http://worsethanfailure.com*

CRAIG YOUNG

From Technician To VP by 36

TITLE: **Vice president of IT**
ORGANIZATION: **Verizon Wireless**



30-SECOND BIOGRAPHY: Young, 36, began his career at Verizon (then Bell Atlantic Mobile) more than 17 years ago as a technician installing in-car cell systems. He is now vice president of IT for the Northeast region. Under Young's leadership, Verizon has improved customers' experiences in stores, online and on the phone. Verizon has reduced customer wait times in stores by installing automated greeter kiosks, and the company has seen a record number of customers sign up for online bill payment and account services. Young and his team design and maintain IT systems for several regional headquarters facilities and eight call centers.

CURRENT PROJECT: "Our IT teams have been moving technology to the front of the sales process. A customer is now greeted by an automated check-in process, which with several short questions help qualify the customer's needs and manage queue traffic. We use this information to automatically provide sales representatives with options relevant to that customer – before the salesperson even says hello. We also changed some hardware at the point of sale in hundreds of locations, which further helps automate transactions and ultimately improves the customer experience. We can now scan or swipe a driver's license in our stores to reduce keystrokes and ensure accuracy."

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WEN XIAO

Maverick With A Clear Vision

This newly minted CIO figured out a way to extract value from 7TB of corporate data. By Robert L. Mitchell

WEN XIAO, 38, believes the CIO title should stand for "chief innovation officer." Xiao, CIO of the BT Business unit at telecommunications giant BT Group, attributes his track record of success to two beliefs that he says are the mark of every innovator. No. 1: The status quo is never good enough — there's always a way to do things better, faster and cheaper. And No. 2: He can make a difference by doing things differently. "I was never classified as somebody who followed the rules or who would keep the status quo," he says.

A native of Beijing, Xiao began his career at a Chinese high-tech start-up and also worked at Lucent Technologies developing enterprise applications before attending MIT, where he earned an MBA and master's of engineering in supply chain management in 2002. In the three years that followed, he built a track record at BT, culminating in his May 1 promotion to CIO of BT Business, a $4 billion business unit.

In an early assignment as director of an internal strategy team, Xiao guided business process improvements by applying supply chain management concepts such as just-in-time and lean manufacturing and collaboration to track order flows and develop customer service standards at BT. Those efforts broke down departmental system and process silos. "We applied the same principles to telecom customer service, because at the end of the day, it's the same thing," he says. Those methodologies are now standard throughout the business.

Title: CIO, BT Business

Organization: BT Group PLC

Technology can: "Turn the world into a village, and a village into a world."

Xiao's technical skills are matched by an ability to sell the business benefits of change. "I've witnessed skeptics converted to fans with every major delivery he has done over the last two years," says Paul Stansfield, business engagement director at BT Business.

More recently, Xiao pursued a vision for deriving business intelligence from 7TB of data associated with 4,000 internal systems.

He felt that an enterprise data warehouse would be too bulky for a fast-changing business and turned to a concept that led to BT's System Sophia project. Xiao first examined what business intelligence the company wanted and pulled in only the relevant data to support it. The team then built a Semantic Web-like metadata dictionary to describe each data component in a way that has meaning to the business and combined that with search technology. "We're building an enterprise version of Google [that] searches data embedded in legacy systems," he says. So far, data from as many as 80 systems has been integrated, and stakeholders are using wiki technology to build the dictionary as more data is added.

"Wen has broken the mold with Sophia by creating a tool that goes beyond traditional data warehousing offerings," Stansfield says. The system delivers five times the data in one-tenth the time, he adds.

Since becoming CIO, Xiao has reduced problem escalations to his office from an average of four to five per day to zero, and he is moving the IT team to an offensive position. "I want to improve the productivity of IT operations by 100% this year," Xiao says.

He's also busy developing an offshoring operation in Dalian, China. "In five years, I would see myself running that China center and growing it into a world-class IT services company — like the Infosys of China," he says.

For now, his primary focus is solving immediate business problems. Xiao says his peers outside of IT who are running various operations might know their segments better than he does, "but we have the methodology and ability to make a big difference very quickly," Xiao says. ■

HAYDEN HAMILTON

TITLE: **Founder**
ORGANIZATION: **GreenPrint**

30-SECOND BIOGRAPHY: At college, Hamilton opened a co-op bookstore that challenged the campus monopoly. After graduation, Hamilton, 30, joined Ford of Europe to help create an innovation department, but he soon decided that the corporate life wasn't a good fit and moved to San Francisco to explore entrepreneurial opportunities. In 2005, he created GreenPrint to reduce the wasted paper that accumulates when Web articles are printed.

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BOOK MOST RECENTLY ON YOUR NIGHTSTAND: An audio version of *The Looming Tower: Al Qaeda and the Road to 9/11*, by Lawrence Wright

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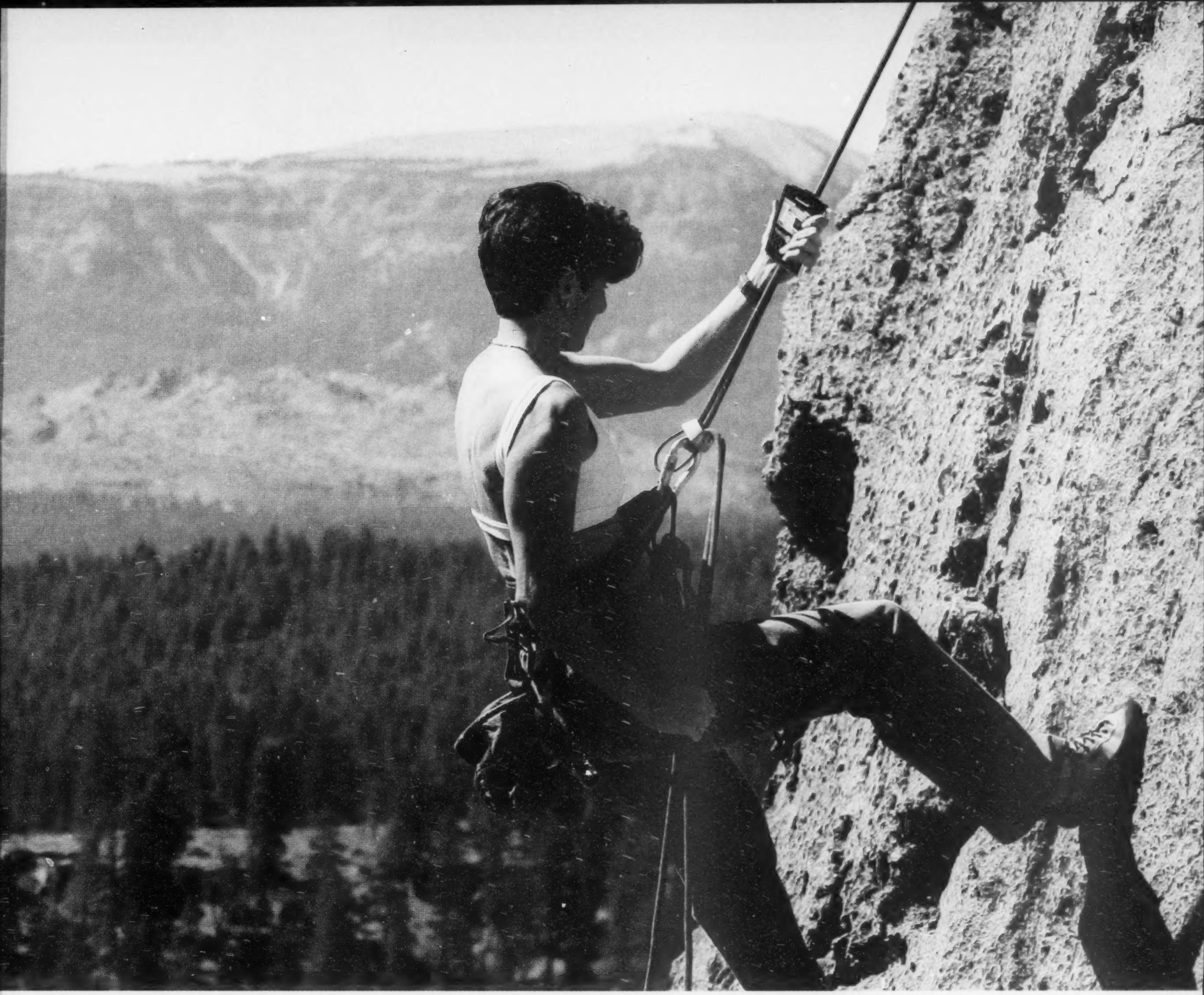
JINYU (GENE) SUN

TITLE: **Vice president of enterprise security engineering**
ORGANIZATION: **FedEx Services**

30-SECOND BIOGRAPHY: Sun began his career in 1991 as a sales engineer at Hewlett-Packard Co. in China. In 1997, he joined FedEx as a technical adviser, leading projects and teams that designed and implemented large-scale data warehouses and online applications. Sun, 37, was promoted in 2001 to a high-profile management position, where he was responsible for development and day-to-day operation of a first-generation FedEx pricing system.

CURRENT PROJECT: "A challenge has been to balance the rich functionality of Web 2.0 with the security guarantees our customers have come to expect from FedEx. My team is working on both prevention and detection techniques, particularly focusing on AJAX technologies."



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TYRONE HOWARD

Project Manager Extraordinaire

Following a stint in the public sector, he started a consulting firm. By Eugene A. Demaître

Title: President

Organization: BizNova Consulting

30-second biography: With over 15 years of project management experience, most recently as manager of the IT project management office for the city of Chandler, Ariz., Howard, 37, recently founded BizNova, which focuses on consulting and training in project management.

Current project: "Establishing an IT project management portal that provides access to training, process, forms, consulting information, oversight committee information, strategic planning information, tools and access to a project management system."

Technology can:

"Be a vehicle for what we thought was impossible."

TYRONE "Ty" Howard is working to improve the profession of project management, not only by developing tools and techniques, but also by serving as a mentor.

"Project management systems fail constantly, but it's not just about the technology; it's about the culture," says Howard, 37, founder of BizNova Consulting in Gilbert, Ariz. "A project management system is just a tool. It's like this: A carpenter can buy a hammer, but the hammer won't build a house. In IT, it's the people who do the building, not the tools. Project management often fails because it's not comprehensive. That culture needs to change."

Marilyn Delmont, CIO for the city of Chandler, Ariz., worked with Howard for five years before he left his position as head of the city's project management office to start up BizNova this spring. She says Howard "has the ability to build good strategic relationships with clients and whoever he comes into contact with. For any proposal or business plan, he has done due diligence and provides several alternatives."

"What intrigues me is how IT relates to business and competitive advantage," says Howard. "Even governments need to be competitive — agencies look to provide the best services to the public. How can they serve them efficiently?" Because things such as ERP systems can be so expensive, he notes, agencies "really want to choose the right project."

Howard's desire to make project management more comprehensive and his enthusiasm for working with people date back to his time as a collegiate athlete and coach. "Coaching NCAA wrestling taught me discipline," he says. "When I talk to people, I like to see that same energy we put into sports turned into a passion for something, whether it be for academics, a musical instrument or their profession.

"As a coach, I learned that people have different motivators," says Howard. "I learned how to lose, how to win and how to be a team player. I have a genuine place in my heart for training, pushing myself. That translates into reading a lot, interacting with teammates and public speaking."

Howard travels nationwide to speak before governments, universities and businesses about project management. He has also served as an adjunct instructor at the Keller Graduate School of the University of Phoenix and a lecturer at the Carey School of Arizona State University.

"Ty was mentoring a junior project manager," recalls Delmont. "This person's performance was stellar, and Ty put him on a highly visible project. Because of my confidence in him, I said, 'Let's do it.'

"He encouraged the junior person to go back to school," Delmont says. "Ty coached him on how to deliver multimillion-dollar projects on time and under budget. Ty has left a legacy of a great team of talented managers."

Looking ahead, Howard says that BizNova is "working with executives to develop, hire and place project managers. We're offering a complete solution: hiring, support, certification and speaking." ■

ALEX ISKOLD

Pilot in Smart Search

TITLE: CEO
ORGANIZATION: AdaptiveBlue

30-SECOND BIOGRAPHY: Iskold, 34, started his career in 1994 as a software engineer at Goldman Sachs & Co. In 2000, he founded Information Laboratory, which pioneered the application of complexity science to software engineering. That business was acquired in 2003 by IBM, which has incorporated the technology into its Rational Architect toolbox. As chief architect at DataSynapse Inc., Iskold helped bring to market the GridServer and FabricServer products. Today, he is CEO and founder of AdaptiveBlue, which is developing smart-browsing and personalization technology aimed at the Semantic Web.

CURRENT PROJECT: "We are developing unique, top-down Semantic Web technologies that make it easier for people to find relevant information online. Our first product, BlueOrganizer, allows you to instantly add a book to your Amazon wish list, reserve a restaurant table or find a map of a travel destination."

MOST-CRITICAL TECHNOLOGY FOR IT THIS YEAR: "Personalization. As users' attention becomes scarce, relevance becomes the key."

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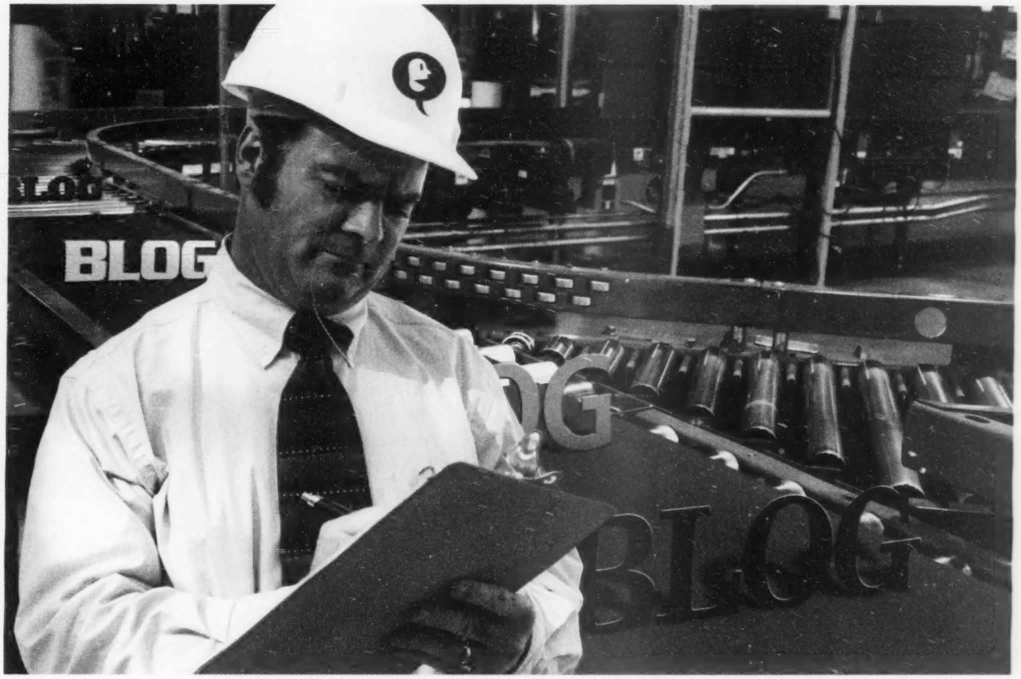

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STEVEN BARLOW

Master of Data Warehousing

He started as an IT temp and now oversees a 21-hospital data repository. **By Mary K. Pratt**

STEVEN BARLOW intended to work in health care, as either a dentist or a hospital administrator. But a temporary job lured him into IT, where he has established himself as a leader in business intelligence and data warehousing for the health care industry.

Barlow, 38, is the manager of the enterprise data warehouse at Intermountain Healthcare, a Salt Lake City-based nonprofit health system. He manages a team of 40 and oversees a data repository that integrates 48 disparate sets of data from across Intermountain's 21 hospitals and 100 clinics.

His department manages the infrastructure and processes used to deliver the analytics that the organization then uses to develop strategies for cutting costs and improving clinical quality, patient satisfaction and patient safety.

"Those are our fundamental business goals, and we use information in our data warehouse to measure and support those goals," Barlow says.

Under his watch, Intermountain Healthcare has become a recognized and award-winning leader for its data warehousing practices.

Barlow also shares his expertise through the Healthcare Data Warehousing Association. A group he founded and now helps run, the association serves 80 member organizations and nearly 300 individual members.

TITLE: Manager, enterprise data warehouse

ORGANIZATION: Intermountain Healthcare

30-SECOND BIOGRAPHY: When Barlow, 38, joined not-for-profit Intermountain in 1992, he unboxed, set up and configured workstations. Today, he oversees a data repository that integrates 48 disparate sets of data from across all of Intermountain's 21 hospitals and 100 clinics. He is also a founding member and chairman of the Healthcare Data Warehousing Association, whose mission is to serve as a forum for its more than 80 member organizations.

CURRENT PROJECT: "I am helping lead the effort to architect and develop the data warehousing and business intelligence components of the new enterprise clinical information system being co-developed by Intermountain Healthcare and GE Healthcare."

Barlow is currently leading the effort to create the data warehousing and business intelligence components of an enterprise clinical information system that Intermountain and GE Healthcare are developing jointly.

"Steve is extremely innovative. He's one of the best team-builders I've ever met. He has a great ability to foster a culture of collaboration and camaraderie and is able to achieve tremendous results," says senior engineering manager Tom Burton, Barlow's former boss and now his peer.

Barlow has built his entire career at Intermountain. He started with the organization while a senior at the University of Utah, where he earned a bachelor's degree in health education and promotion. His first job at Intermountain was a temporary position setting up computers. Although he had plans to attend either dental school or a graduate program for hospital administration, he realized he had an affinity for IT work.

"I like to use technology to solve problems, so it just kind of seemed like a natural fit. But I didn't want to be a stereotypical programmer writing code all day. I wanted some interaction with the business side," Barlow says.

He took a permanent job in technical support and moved up through the IT department and into his current position in 2004. He says much of his technical education came through on-the-job training and books. Barlow, who is married and has five children, enjoys reading, particularly history, science fiction and "all good fiction," as well as business and leadership books. ■

Pratt *is a* Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

GENE KIM

Catalyst For New IT Goals

TITLE: Chief technology officer and founder
ORGANIZATION: Tripwire Inc.

30-SECOND BIOGRAPHY: While still a student at Purdue University in 1992, Kim co-authored Tripwire, configuration audit and control software that's now used by more than 5,500 organizations worldwide. In 2004, Kim co-founded the IT Process Institute, an organization dedicated to developing prescriptive guidance for IT, security management and auditing operations. That same year, Kim, now 35, co-authored *Visible Ops Handbook: Implementing ITIL in 4 Practical and Auditable Steps*, which has sold more than 75,000 copies.

MOST-CRITICAL TECHNOLOGIES FOR IT THIS YEAR: "The vast majority of IT organizations realize that they can't simultaneously deliver their committed projects on time while delivering reliable IT service. What we need now is the decision science of how we make good, informed decisions about how to manage technology to get the business what it needs and make sure it is always working when it should."

BOOK MOST RECENTLY ON YOUR NIGHTSTAND: *Zero: The Biography of a Dangerous Idea*, by Charles Seife

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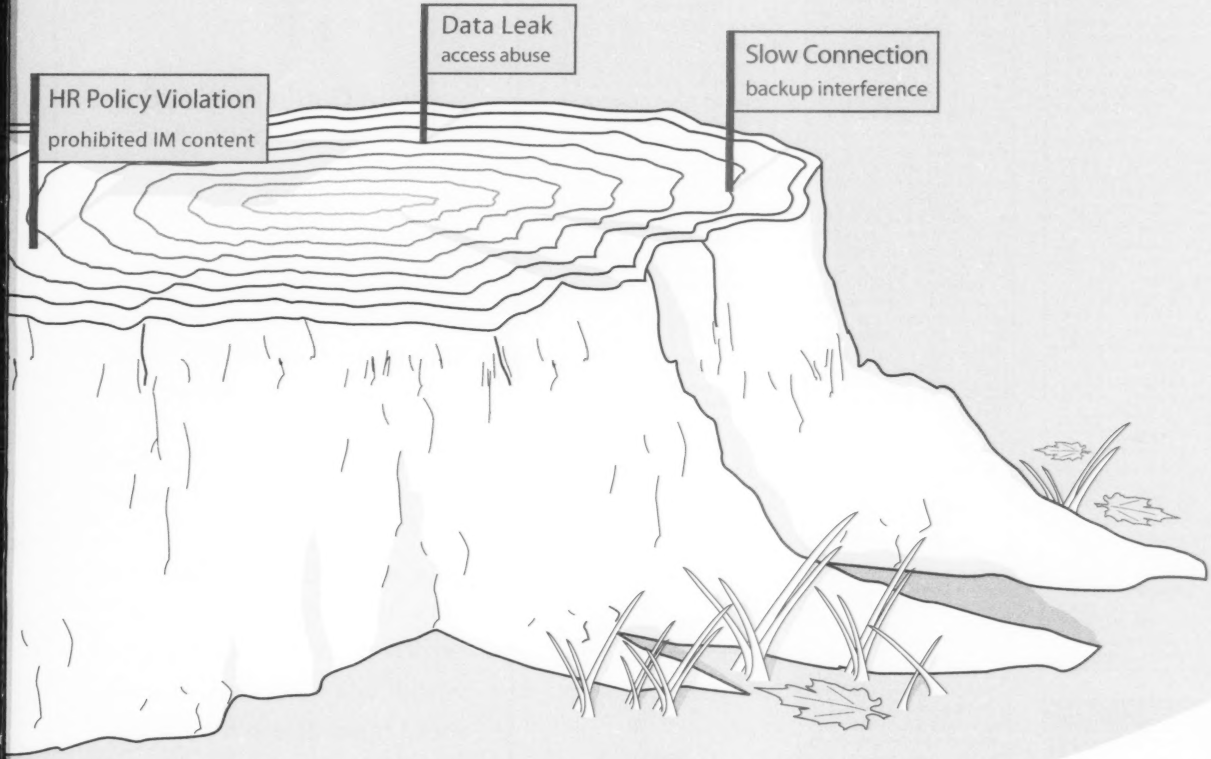

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Diversity Spotlight:

women in IT

Issue Date: August 6
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SharkTank

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

Imponderable

User calls pilot fish to report that the company's phone lines have gone down – nobody can make or receive long-distance calls. Fish pulls out his cell phone and calls the telco to report the outage. Telco guy: "The reception on our call is very bad. Are you calling on a cell phone?" Fish: "Yes, I am." Telco: "You should call back on a land line so that I can hear you better." Fish: "Well, honestly, if our phone lines were working, I don't think we'd need to have this conversation at all."

Incomprehensible

There's a major Internet problem affecting the entire company, and this pilot fish is scrambling to clear the blockage and get everyone connected again when he receives an e-mail marked "high priority." "It was also labeled, 'Must be completed today!' " fish says. "It stated that I have no trash can at my desk. Now what the heck does that have to do with the IT department?"

Unacceptable

IT auditors want proof that this pilot fish – who used to be on the configuration team but isn't anymore – no longer has access to the administrative account. Fish's solution is simple and quick: He logs in, tries to access the admin account, fails, then cuts and pastes the "access denied" output into an e-mail message. "But that's not good enough for the auditors," grumbles fish. "They require that a screenshot be taken of the desktop with the terminal window showing the failed attempt. After a moment of cognitive dissonance, I dutifully complied. But I'm still not quite sure what they're trying to confirm – perhaps that the screenshot function works?"

Indisputable

A Severity 1 issue – the highest severity that can be assigned – is routed to this IT help desk pilot fish, and the trouble ticket includes the following statement of business impact: "Clients at this facility were unable to utilize computer equipment during the power outage." Fish knows exactly what to do: "I kept the report and hung it on the wall behind my desk."

Indecipherable

Pilot fish is on vacation in the western U.S. when stops to use an ATM to get some cash. "I'm accustomed to being prompted for my language of choice, and this particular ATM had a nice list to choose from," says fish. "But after I selected 'English,' the next screen said: 'You have selected English for your language. Please press Enter to confirm your selection.' Gee, if I'd actually made a mistake and this was in a foreign language, how would I know what to do?"

■ *Sharky knows what to do now that he's settled into his new space: Fill it with true tales of IT life. Send yours to sharky@computerworld.com, and I'll send you a stylish Shark shirt if I use it.*

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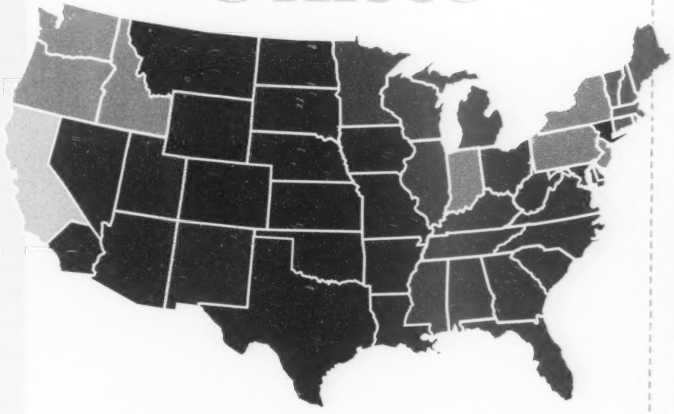

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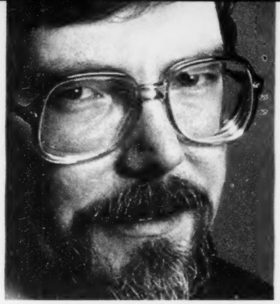

The iPhone Project

THE iPHONE has finally arrived. Apple sold more than 500,000 of the little darlings the first weekend, and you can be sure that some of the people who bought them are at your company. They'll want to use their iPhones for work. And no matter what Gartner says, if one of them is your CEO, you've got no choice.

Do users want these gadgets because they're useful business tools or because they're yuppie bling? Doesn't matter. They're here. We know that saying no won't work. Either we support iPhones on our own terms, or we'll waste endless energy in cat-and-mouse games with users, all the while generating bad feelings that will sabotage everything else we do.

So let's stop kidding ourselves. For IT, the iPhone isn't a choice. It's a project.

Like every project, it must have a business sponsor. And user requirements. And a plan for budget and deliverables.

It doesn't have to be a big, complex project. In fact, it shouldn't be. This is a chance to prove that we can handle a quick, lightweight project that makes politically powerful users happy without risking security or stability.

You know how to do it. But here's your cheat sheet anyway:

■ Identify a business sponsor for the iPhone support project. That's likely your highest-ranking iPhone user, but mainly it's someone to take the business-side political heat. Remember, no business sponsor, no iPhone support — and you're off the hook.

■ Make clear that IT won't pay for iPhones. Any business user with a good enough reason can find the necessary money in his own budget.

■ Acquire a testbed iPhone. You don't really think users will put up with endless testing that ties up their brand-new toys, do you?

■ Let's stop kidding ourselves. For IT, the iPhone isn't a choice. It's a project.

■ Explain clearly to users that at first, your iPhone support will be minimal — and that you'll expand it as quickly as you can, but your No. 1 priority is preventing thieves and hackers from hurting either the users or the company.

■ Ask each iPhone user for the one specific area that's most important for IT to get working first. And don't just aggregate these responses; prioritize on the basis of what's easiest, what's most practical and what comes from your most politically important users.

■ Record serial numbers. Photograph each device. Make a big show of this. It tells users you're taking it all seriously — and guarantees you know each authorized iPhone user.

■ Password-protect iPhone voice-mail accounts. Even a weak, easy-to-remember password is better than AT&T's default, which is to check Caller ID to see if the iPhone is calling. These days, Caller ID is easy for even amateurs to spoof.

■ Start figuring out IMAP over SSL. That's what you'll be using to support e-mail on the iPhone.

■ Set up a plan for rolling out configuration changes and security adjustments and for confirming firmware updates — and make sure users know about it. That's your excuse for continuing to track who's using iPhones, and it helps kill their temptation to go it alone.

■ Roll out changes early and often, especially security-related changes. Don't just roll them up into big releases; that may be less labor-intensive, but it means you'll lose the face time with important users.

Remember, every time those users see you expanding what they can do with their iPhones, the more impressed they'll be that IT is actually working for them.

And that makes the iPhone very useful to us — even if it is just yuppie bling. ■

Frank Hayes, *Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.*

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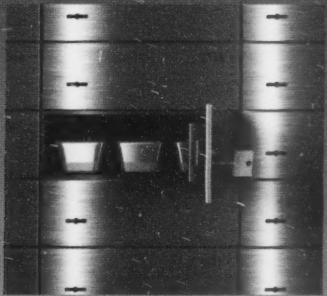

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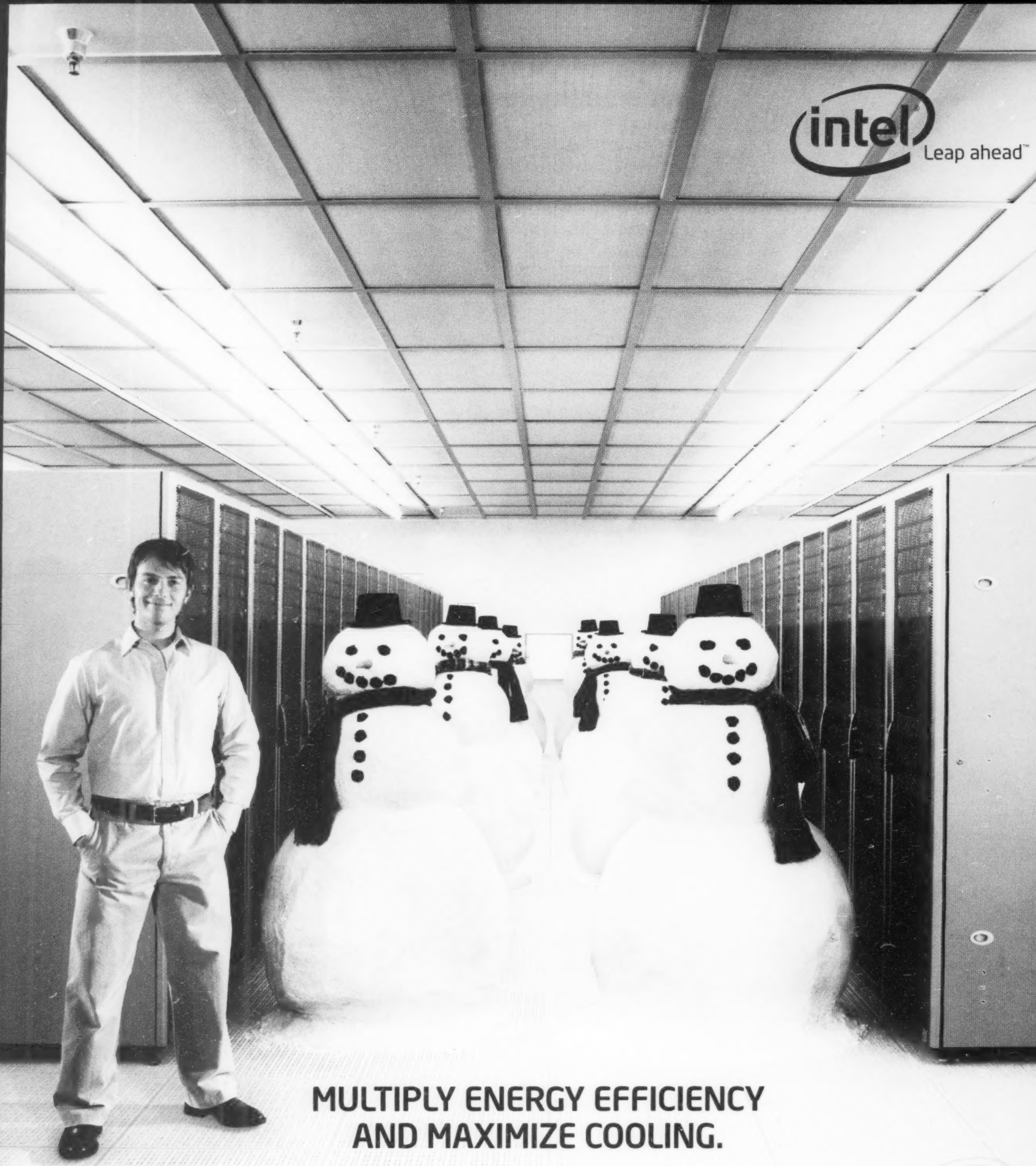

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